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# COMPUTER WEEKLY

## 'ICL is a jewel—cherish it', MPs told

**By Rory Johnston**

THE meeting at the Commons between MPs and the top brass of ICL, which had been called ostensibly to discuss the Auditor General's criticism of the company (CW, April 13), turned out to be quite a cosy affair.

In the event nobody even mentioned the Auditor General's report.

But only five MPs and one peer turned up for the meeting, coincided with Sir Geoffrey Howe's speech in response to the Budget, and computers had to take second place to the weighty issues of finance.

Dr Chris Wilson, ICL's managing director, gave a presentation impressing on the MPs the value of ICL to the balance of payments and the situation it foundered.

'ICL is a jewel—cherish it' pleaded his supporters. He quoted not only the numbers of

employees the firm and its suppliers have, but the numbers of their dependents as well.

One MP asked whether there was any point in an R&D expenditure that was only 1% of 1981's. Wilson pointed out that ICL took advantage of the R&D of all its component suppliers worldwide, while IGM duplicated all this work itself.

Asked why there was not more large-scale co-operation with Europe, the ICL men painted the picture of a large company and ICL's position in the European market, and that project had then collapsed, simply because all it had tried to do was copy IGM.

Eric Maanman, Labour MP for Bealton, who organised the meeting, said he was still unhappy that there was not a stronger European co-operative base in the industry.

Another MP asked what ICL was doing

regarding the work of small companies. It appeared he was under the impression that big computers are made by big companies and small computers by small companies. Nobody seemed eager to tell him that Digital Equipment is a large company and that ICL and IGM are small companies. They printed out that ICL and IGM are small companies and that ICL and IGM are small companies.

In the end it was decided that what was needed was another meeting, at which the MPs could learn more about ICL's thinking. In the meantime ICL can take comfort that there does not appear to be any MP's in the moment who are interested enough in the company to cut it off without a sou—or without a preferential procurement policy.

## More funds likely for Dol micro policy

IT IS likely to be at least two months before the Department of Industry's support scheme for the microelectronics industry in the UK becomes a reality, and there is informed speculation that the money involved could be considerably increased.

It is understood that the Electronic Components Sector Working Party of the DTI has yet to finish its deliberations, and produce a final draft of its report to the Department. One possible sticking point seems to be the amount of money suggested by the DoI (CW, January 18).

Some pressure is building up from within the industry to increase the financial support for example, Alan Shephard, managing director of Tetrahedron Electronics Components Division, pointed out that although the figure of £80 million had been proposed, this was far below already on-going government support.

"The actual new money is around £25 million," he said, adding that recent statements had indicated that it might increase the "new money" to £50 million.

It is understood that the Department is prepared to be flexible on the amount of funding, and accepts that some national increase over the original £80 million will be required.

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## Software support for 1900 pledge to users

A COMMITMENT to support 1900 software for "at least seven years", and a prediction that in 10 years time ICL would have a £2.5 billion turnover with over two-thirds outside the UK, were the main messages given by ICL directors to the ICL Computer Users' Association annual convention at Eastbourne last week.

In what most delegates regarded as a competent, although low-key speech, ICL managing director Dr Chris Wilson emphasised that he believed that ICL's decision 10 years ago to develop the new architecture of the 1900 would put the company in an extremely strong position once the initial development problems had been ironed out.

He admitted that the 2000 development

path had included some unforeseen difficulties and delays, but he added that there had been no fundamental design problems and that in a few years' time, when other product lines, ICL would have a "fully matured" range.

He said he believed that ICL could continue to grow at about 20% per annum.

At a Press conference, he also said that it was vital for the government to continue its procurement policy favouring ICL. He said that, without an independent ICL, the balance of trade could be adversely affected by about £1,000 million over five years.

The commitment to the 1900 series was made by ICL's marketing director, Peter Ellis.



Top ICL directors attended the ICL Computer Users' Association convention in Eastbourne last week to tell users that the "wind of change" would be ridden by ICL to a profitable future. Seen here in front of the convention centre in Eastbourne are (left to right) ICL managing director Dr Chris Wilson, marketing director Peter Ellis and director of external relations, Peter Hall.

## Briefing European harmony plea

ALL legislation concerned with the relationship between computers and privacy, data protection and security should be harmonised by a standing committee to be established under the auspices of the Council of Europe, according to the European Computing Services Association.

In a paper submitted to the council this week, ECSA also suggests that the council should call a meeting of all interested countries to establish a standing committee to lay the foundation for the establishment of an international convention of basic standards and regulations.

## Mixed reaction to Sir Keith on Post Office

THE Post Office Engineering Union strongly disapproved Sir Keith Joseph's views expressed in his Computer Weekly interview (CW, April 27) that telecommunications should be freed "as totally as possible" from the control of the Post Office. But Sir Keith's views have been welcomed by Rascal.

"Once every Tom, Dick and Harry connects his own equipment to telephone lines, there's no telling what problems could result," said a POU spokesman.

"We are not uncritical of Post Office operations, far from it. They should be much closer in touch with market needs, and speedier in acting on them. To this end the marketing board recently been doubled to £7 million, but this is still far below the level that we would recommend," said the union official.

"We think the Post Office has been very slow in introducing new equipment. An exception has been the videodata service, where the introduction process has been shortened by a whole year."

"But the Post Office method of putting new equipment on trial is basically sound."

Leighton Davies, head of Rascal Data Communications commented: "We have said very little to the Post Office in the past nine years. The Post Office has in a way been a competitor of ours, and a relaxation which allowed us to do the switched network would help substantially."

## Security service planned by NCC

THE National Computing Centre is considering setting up a computer security service to act as a focal point in providing advice and education on security, and in bringing together users and providers of security systems.

To this end, the NCC is carrying out a survey of possible suppliers and users to see what the demand is for such a service.

As currently proposed, the service would comprise a newsletter, reporting on conferences, legislation, books, published cases of security breaches, etc; packaged training courses; publications and papers; a code of practice for advice and consultancy; conferences and workshops; information, in the form of indexes of suppliers and products, and bibliographies.

In setting up this service, the NCC emphasises that it would not be going into competition with existing consultancies; this would be an "umbrella organisation" with three basic aims: to increase users' awareness of the need for security and what options are open to them; to encourage the provision of products and services for security; and to establish standards.

As part of its "feeling the water" the NCC is talking to the insurance and security industries, and to the Computer Services Association.

Alan Benjamin, director-general of the CSA, told Computer Weekly that he thought such an organisation was needed, but could not say whether the form as at present conceived would be acceptable.

# EEC leads on user freedom

INCREASED momentum towards growing user independence from manufacturers has been made by the establishment of a working party within the EEC looking at the role public procurement can play in implementing international standards, and by a call from the chairman of the ICL Computer Users' Association for British government backing for user groups which are studying problems that concern all users.

The EEC working group is studying ways in which the combined purchasing power of governments can create some kind of order from the chaos of current computer system standards.

A proposal has been made that all government computer procurement contracts should include a clause which requires contractors to include a detailed explanation of their input-output and terminal interface standards.

Another proposal being considered is that manufacturers tendering for government contracts should provide software to meet internationally agreed software standards. This type of government move towards standardisation is in line with pressure being applied for increased standardisation in the US.

A recent report by the US government's auditing department emphasised that lack of

standardisation is costing the government hundreds of millions of dollars.

On her recent visit to London, Captain Grace Hopper stressed that it was the intention of the US Navy and other government departments to make the meeting of standards obligatory in tenders.

And the US National Bureau of Standards is working on a definition of an I/O interface standard with a view to making it mandatory on all computer bids for government contracts.

Although it would take some time for European governments to agree to any common standard, there is increasing pressure from commercial users for improved portability of peripherals and software.

Speaking last week at the ICL CJA convention in Eastbourne (see pages 2 and 11), the

association's chairman, Dr Howard Wrigley urged the British government to provide financial backing to user groups which have objectives wider than purely parochial manufacturer-dependent issues.

He pointed out that the EEC funded the inaugural meeting of

Turn to page 14

**June boost for Series 1**

ENHANCEMENTS to







## MICHIE'S PRIVATEVIEW

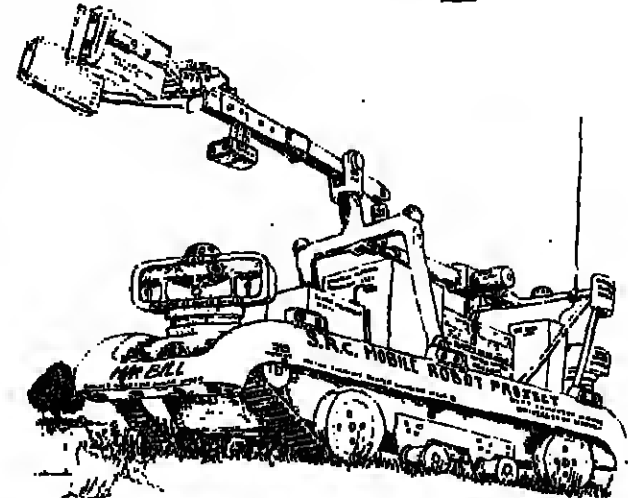
# Robot workshop of the world?

THE Department of Industry's committee on automated small batch production has concluded that the UK lags our major industrial competitors by about 10 years. This was revealed at a meeting on robotics sponsored by the department's National Engineering Laboratory. The meeting was both thrilling and deeply depressing.

Internationally minded enthusiasts for new technology were given a feast of new marvels from the R&D laboratories of Volkswagen, Renault, Fiat and Unimation. The latter's current experiment is with two-armed assembly of an entire car transmission system.

The meeting also listened with disbelief — and for those patriotically inclined — with horror to evidence of the miserable neglect of robotics R&D in the UK.

It is now argued by some that R&D would come too late. An initial headlong scramble is now needed if seeds of the new



This concept of a rough terrain robot has been created by Mike Larcombe at Warwick University under the Science Research Council's mobile robot project.

Industry are to be planted in UK soil. Such a scramble has to start with importing and copying. Only when a viable domestic technology has been thus established can we be in

any position to understand and exploit the fruits of new research.

My own inclination is to draw a sharp distinction between robots for British

manufacturing industry, and robot manufacture as a British industry. In the second I perceive the real chances — based on selling where the market really is. This means looking on the huge manufacturing industries of our competitors in Japan, West Germany, and the US, as prime customers.

So long as the annual rate of investment in new plant and equipment runs at about one half that of the main competitor nations, our factories cannot afford even to assimilate the inventions of the past, let alone take up revolutionary novelties.

Could the UK become the robot workshop of the world? In the immediate future, giants like Unimation will be hard to beat. In the "hand-eye" game anyway, even research will need to import the engineering hardware at the start.

Software is another matter. Here capital costs and heavy engineering capacity are not the constraints. The industrial

world today can buy useful dumb robots off the shelf.

But which country's R&D will be first to put real smartness and learning ability into their make-up?

Not only computer scientists but many others perceive in the foreign robotics built-up something of an emergency R&D project conducted in the wartime style, cutting red tape, have been discussed. Some years ago I myself attempted to mount a robotics "crash project" of this kind, but the climate of official opinion was not ready.

For the time being, then, the priority must be first to scramble, importing and copying finished technology. Fundamental robotics should be done, but general towards the post-scramble 1980's.

There are ways, particularly in "computer vision", in which such work could blend well with a well-planned "expert systems" programme. My hunch is that the meeting point will come with autonomous



exploratory vehicles which require to exercise some scientific expertise.

Let Propulsion Laboratory's Mars Rover vehicle be the supreme example. Due to be operational in the mid-1980's, it will perform on Mars many of the sorts of measurements which human astronauts did on the moon.

Many of the knowledge-representational issues can be studied with quite cheap laboratory rigs. Shown here is Mike Larcombe's drawing of Mr Bill, the mobile robot he is developing at Warwick University which made its debut at a Royal Society soirée.

Donald Michie

## PROGRAMMER NOTES

# Two winners in Fortran competition

All the entries to our Fortran competition have now been judged by Dr I. D. Hill, who laid down the objective of writing a DINT function using the strict ANSI 1966 standard.

He examined each entry with great care, noting even the least divergence from the ANSI standard. Well known for his refereeing work for the ICS on Algol and Fortran algorithms, Dr Hill — who works for the computing and statistics division of the Clinical Research Centre — maintains he enjoys the work. Programmer Notes offers thanks for all his hard effort. His report follows.

THERE were 43 entries altogether. The variability in size of entry was enormous, ranging from a postcard at one end of the scale to 40 pages of computer output at the other.

Seventeen of them could be rejected at once, either for obviously failing to do the right job or for violations of the 1966 Fortran Standard. Some of the violations were serious: mixed mode (integer and double precision) expressions; declaring DOUBLE PRECISION DINT in the second line in addition to DOUBLE PRECISION FUNCTION DINT (VALUE) on the first; a loop expressed as DO 30 I = 0, 0, -1 and so on. A few were merely forgetful, such as omitting the END line; while seven fell into the trap of including non-Fortran characters (‘ ’) in comment.

Whether the Standard intended to disallow this may be doubtful, but the wording is absolutely clear that it is disallowed, and the competition was clear in requiring the provisions.

DOUBLE PRECISION FUNCTION DINT(DARG)  
DINT=DARG  
DO 10 I=DARG, DARG, 1  
DARG=DARG+1  
DINT=DINT+DARG  
10 CONTINUE  
RETURN  
END

Figure 1  
DOUBLE PRECISION DINT, DARG  
DINT(DARG) = DARG - DMOD(DARG, 1.000)

The remaining 26 were all examined in detail. They could at once be divided into two categories — those that realised that a simple solution could be found by using the DMOD function, and 17 that did not.

Some competitors may have examined the table of intrinsic functions. Found MOD and ASHUT there, but not DMOD. A is included, however, among the basic external functions.

One author wrote "I did look at the problem of obtaining a fully portable DINT without the use of DMOD; and I shuddered". So did I when I first met the problem, which is what led to my suggesting it as a competition. Some entries caused the shuddering to increase, while a few showed that something neat is possible. The best of these is shown in Figure 1.

This cannot really compete, though, with the use of DMOD, particularly if expressed as a statement function, rather than an external function (see Figure 2).

The operations called for in this (assuming that the compiler does not recognise the argument 1.000 as a special case) are, of course, quite tedious: consisting of 1. Divide DARG by 1.4. Take the integer part (which we eventually want) 2. Multiply by 1.4. Subtract from the original DARG (to get the fractional part); and 3. Subtract from the original DARG (to get the integer part again).

Only two competitors submitted this solution in the next statement function, form and £10 prize is awarded to W. Henry of Belfast and in Peter Chubb of East Tibury.

## SOFTWARE FILE

# Asas implemented on Prime minicomputer

THE popular structural engineering package Asas has for the first time been implemented on a minicomputer, a 256K Prime 400. The package developers, Atkins Research and Development, have also adapted the software for a greater range of Digital Equipment models, including the DECsystem 2020.

The system, in its latest release, Version G, was converted for use on an in-house Prime 400 by consulting engineers Rendel, Palmer and Tritton, who quote an eight man-week conversion effort.

The version produced, which will be marketed by Atkins, is used by Rendel, Palmer and Tritton in conjunction with its own graphics software. However Atkins says that the standard Asas display system, ASDS, based on Gino-F, may be incorporated for future implementations.

The DECsystem 2020 implementation was demonstrated by Digital Equipment at this year's Hannover Fair. Atkins has also run the software successfully on a 2050 machine and has been asked by DEC to consider an implementation for the VAX processor.

Asas, which received NCC support under the Software Products Scheme, has been widely installed in UK bureaux. It has previously been run only on large systems, including Univac 1100, DECsystem 10 and CDC mainframes.

Its implementation on the Prime equipment further widens

the range of options open to Prime engineering users. The system already supports the Genesys and Pafec packages for structural analysis, the latter, like Asas, offering finite element capabilities.

Atkins has now concluded an agreement under which Honeywell customers requiring a structural analysis package will be referred to Atkins (CW, March 17, 1977). The company is currently exploring alternative ways in which Honeywell customers could be serviced.

## Sydney office

AN office in Sydney, Australia, has been opened by London systems house Hoskyns. While the eventual aim is to provide a full range of services as in the UK operation, initial efforts will be concentrated on marketing software packages, particularly the company's well-established Modular Applications Systems (MAS).

# User develops Shadow II mapping aid

The creation of screen maps for TP applications is frequently lengthy, tedious, and error-prone. As a result, most TP monitors now provide methods of online screen formatting which generate appropriate maps and control information automatically.

Such features can make possible considerable savings in

# More control theme of Pafec update

A NEW version of the Pafec program for automatic finite element calculation has been introduced by Computerline Bureau Services on Plessey's ICL 1906S at Weybridge, Surrey. Pafec 75 makes the preparation of input data more straightforward and offers the user enhanced run-time control and modelling facilities.

Module names may be abbreviated to four letters and the analysis program can be run in parts, with facilities for off-line, extending, and altering each section. Pafec 75 also simplifies the process of error correction and allows the user to mix certain finite elements.

Both Pafec 70+ and Pafec 75 are used internally by Plessey, the former being the company standard for finite element calculations. Originally written at Nottingham University, both packages are marketed by Pafec Ltd., a company formed specially for this purpose, and are offered by Computerline under licence.

# Apollo offered as stand-alone pack

A JOB input subsystem developed by Value Computing Inc as part of its automatic scheduling system, The Scheduler, is being offered in the UK and Europe as a stand-alone package.

The subsystem, Apollo, provides OS users with online facilities for submitting JCL. As with other Value products for operations management, it will be marketed by RTZ Computer Services.

When used with The Scheduler, the Apollo subsystem retrieves JCL automatically from a production JCL library according to the schedule defined in the work-load control file. JCL is then submitted automatically to the operating system queues in schedule sequence.

However, the system also provides facilities for the retrieval

and submission of unscheduled jobs and online editing facilities for temporary overrides, such as date card changes or changes in parameters.

It is these facilities which comprise the stand-alone package. Constituting a card-less front end, the system allows an operator to select, modify, and submit JCL and control cards without leaving the console.

Jobs submitted can, if required, be completed automatically; more generally, they are entered to the Hsp or other queue under Hold, so that subsequent initiation is under the control of the operator.

Besides allowing central control of JCL, the system also offers the advantage of automatic audit trail of all JCL changes made. Another useful feature is the ability to display procedure libraries online.

Apollo interfaces with a standard Partitioned Data Set or with a JCL master library held by the Librarian, Panvalet, or any other source library system. It runs under MFT, OS/VSI, OS/VSE, and MVS, supporting ASP, JES2, JES3, and Hsp.

# Foresight enhancements

ENHANCEMENTS in the latest release of Foresight, Version VI, are designed principally to extend the program's capacity and accelerate its calculation facilities. Foresight, a financial planning and reporting system, is owned by United Computing Systems Inc, and is available from LUCS either as an interactive bureau service or as a package for in-house use.

Version VI extends the number of reporting periods from 30 to a maximum of 100, the number of operators and operands per line from 10 to 100, and the total matrix positions

for reports to 30,000.

Another enhancement is the provision of an algebraic logic facility. This can apply a relationship to all elements in a line, thus avoiding the necessity for repeated definition of an equation.

African 'first'

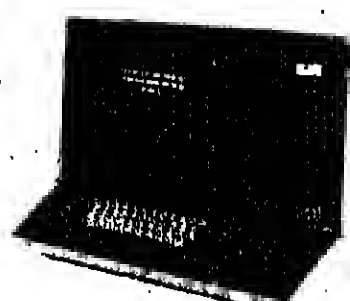
A COMPUTER services company in Addis Ababa, on the Ivory Coast has become the first user in French-speaking Africa for Gael 3, an accounting package sold by Silgos-CPP. The company, La Clerle, will run the software on an IBM 370/135.

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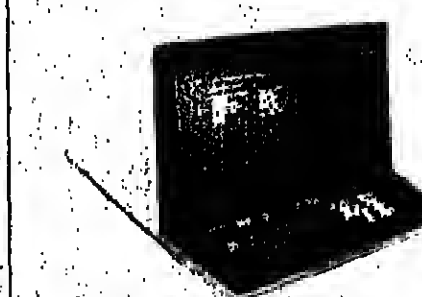
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# PEOPLE

## Directors appointed for Honeywell sales

THE general-purpose computer firm of Paddy McGuire, former founder

Robert Cox and Tim Williams, have appointed senior systems analysts with Central Data, Inc., to join the company with Rank Xerox, John applications support group Williams, with several formerly

Ward, James, and William

[illegible]

polytechnic of Central London, London W12 8PP.

**MAY 13**  
Managing projects overseas, seminar: Association of Project Managers, Walford Hotel, London WC2. Details internet, 01-706 1812.

**MAY 16/Big Brother** is watching you, GK7 P. Samci, OCS Croydon branch, Fairfield Italia, Croydon, 10.15.

**MAY 17**  
ACM Communications for the smaller user, Data Processing Management Association, Bull Hotel, Gormers Cross, 18.45.

**MAY 18**  
Syllabus analysis, art of selection: Frank Land, PCS Cheltenham and Gloucester Club, Cheltenham Motor Club, Cheltenham, 10.30.

**MAY 19**  
ACM and visit, BCS Aberdeen branch, College of Commerce, Aberdeen, 19.30.

**MAY 17**  
Standards in Industrial strategy, conference, Dept of Prices and Consumer Protection/NEERC/17/81, Church House, Westminster, London.

**MAY 18**  
ICL transaction processing option for

**MAY 18**  
ACM, HCS, Microstyle club branch, Greenbank House, Greenbank Lane, Liverpool, 18.00.

**MAY 18-19**  
Local Authorities Group meeting, IBM Computer Users' Association, IBM UK Scientific Centre, Peterlee.

**MAY 19**  
ACM, BCS, Hampshire branch, Poyles Hotel, Ampfield, 10.00. Contact secretary.

**MAY 23**  
Mass communications, Roger Pye, Association for Consulting Machinery, Polytechnic of Central London, London W1 1B, 18.

**MAY 24**  
A management guide to database planning, seminar, Data Processing Management Association, Gloucester Hotel, London SE19. Enrolment: Theresa Barnard, 01-497 2171.

[illegible]

**AGM/ Future impact of microprocess-**  
ing on CD reports. A. D'Agapeyeff, ICS W  
Herts branch, Heath Park Hotel, Hemet  
Hempstead, 18.30.

**Software engineering seminars — the**  
quest for a common factor programming  
notation. E. J. Schemm, Oxford University.  
Nuclear Physics Lecture Theatre,  
Keele Road, Oxford, 16.30.

**AGM/ Programming languages, the way**  
ahead. T. J. H. Jones, ICS Oxford  
branch, Oxfordshire County Council Staff  
Restaurant, Oxford, 18.45.

**AGM/ Microcomputers, the challenge of new**  
technology. A. D'Agapeyeff, G. Foster,  
A. B. S. Applied Systems, Catà Royal,  
London W11, Booking D. Pavlou, ICS  
Oxford, 18.30.

**AGM/ Data Processing Management**  
Association British Institute of Manage-  
ment, London W2.

**AGM/ Young to design computer evolution**  
conference. D. S. Davies, E. Freeman,  
ICS/INCH, Institution of Mechanical  
Engineers, Millgate Walk, London WC2,  
14.30.

**Staff are engineering scientists**  
database support for system testing. I.  
Henderson, Unifad, University, Nuclear  
Physics Lecture Theatre, Keele Road,  
Oxford, 16.20.

# MALCOLM PELTU REPORTS ON THE ICL USER CONVENTION IN EASTBOURNE

## 1900 users plea for a 'golden bridge' to future

USERS of ICL 1900 systems have only a few years left in which they will have a sufficiently powerful voice to significantly influence ICL to provide a "Golden Gate" bridge to the future rather than a "Bridge of Sighs".

Summing up a consistent theme throughout the 1978 ICL User Convention in Eastbourne — the need for ICL to give priority to easing the transition of its existing customer base to the 2900 series — Dr Jim Altly, director of Liverpool University computing centre, called on ICL to consider with urgency the provision of improved 1900/2900 transition aids.

And he warned 1900 users not to gain a sense of false security over the next few years when ICL and independent suppliers would be wooing them.

In particular, Dr Altly asked ICL to show a more sympathetic attitude to allowing the connection

potential for being altered to native 2900 mode. He therefore called for a model, such as a 2040, to plug the gap between the 2903 range and the 2950 and the provision of adequate transition side for 2903 users.

He also asked for a commitment from ICL to international network standards.

ICL marketing director Peter Ellis emphasised ICL's commitment to 1900 users for at least seven years (see front page) and commercial director Peter Simpson said he would be following up Dr Altly's suggestion in detailed talks with the user association.

Throughout the convention many users expressed their satisfaction with 1900 systems, now that the software has settled down.

That was why so many users had greeted with relief the announcement last year of the DME emulation system which

ICL managing director Dr Chris Wilson told Computer Weekly that ICL would do all it could to encourage DME users to switch as soon as possible to VME/B or VME/K, the 2900 operating systems. He pointed out that users faced with the inevitable costs involved in system conversion are at their most vulnerable to competitive manufacturers and that the DME users were still essentially in that pre-transition period.

Dr Altly predicted the "death of the 1900" within ten years. Over the next four years, he said, the picture for 1900 users would be good because many independent suppliers would be offering products, particularly software systems, to the still large customer base and 1900 users would also remain a key concern of ICL.

But after about 1982, the numbers and power of 1900 users would quickly diminish.

## Qualified user satisfaction with VME/B

AFTER initial performance problems with its 2970 under VME/B, W. H. Smith is now "fairly happy" that the system is on the right path for providing an effective "usable" service. But the Remote Job Entry facilities of VME/B and the lateness of some software developments were criticised.

According to Gavil Gaylor, Smith's computer manager, the main improvement offered by the 2970 over the 1900 series is in the data and file handling facilities.

For programs written from scratch in native mode 2800 code, Gaylor said that the 2970 performed about 2.5 times better than the 1900. But when there had been a straight Cobol-to-Cobol conversion from 1900 to 2900, the 2970 showed no improvement over 1904B. The 2970 system performed significantly worse than the 2970 running programs under the BMEEP emulation system programs that had been converted from 1900 Pion to 2900 Cobol.

One major production system that had been written directly for the 2900 took up about 7% of the capacity of the 2970 whereas a similar system took over 30% of the capacity of the 1904B.

## 'Improve facilities for distributed processing

IN ORDER to provide users with adequate distributed intelligence systems, ICL must improve the Remote Job Entry facilities of the 2900 and should recognise the 2903 range as intelligent terminals in their own right.

That is the view of J. J. Williams assistant director of finance (computer-services) with the Severn-Trent Water Authority which is based on a 2900 and nine 2903s.

Having praised the performance, reliability and user acceptability of the 2903 systems to date, Williams said that the authority would not be able to achieve full benefit from the system unless ICL offered some improved capabilities.

He said that there had been better RJE access to an IBM 370/158 at Compower which the authority used on a bureau basis. Failure to inform users of line problems and difficulties in restarting prints were highlighted by Williams as the main faults with 2900 RJE.

David Gaylor of W. H. Smith also criticised 2900 RJE.

Williams said that ICL's current terminal philosophy was based around the 7500 series processors, but he would like to see the 2903 having capability of acting as a concentrator through which terminals could be directly connected to large mainframes.

tion of non-ICL devices to the 1900 and to ensure, as far as possible, that new peripheral devices for the 2900 are also available to 1900 users.

He pointed out that 2903 users are in a similar position to 1900 users because the 2903 micro-code currently runs 1900 software, even though it has a

## Advice on transition

THE transition from existing machines to 2900 will cost a great deal of machine time and money, and should not be confused by attempting to alter the systems at the same time.

That was the clear message of a talk on transition aids given by Ed Wilson, who is currently working for the Inland Revenue, and Alan McCabe, of the Central Computing Agency.

Both emphasised that the aim of transition should be to change systems with the minimum of alteration to data structures and program logic. It was necessary to keep the system's program and data structures unchanged in order to provide a yardsstick against which to judge the correctness of converted systems.

They also stressed that data and programs should be altered in parallel. If data was changed

after the source program conversion, logic errors were likely to creep in.

Wilson pointed out that 1900 users were faced with more complex conversion problems than System 4 users because the 1900 has a 24-bit word structure, whereas both 2900 and System 4 are byte machines.

On the transition aids available, Wilson said that the 1900 File Conversion System offered by ICL required careful pre-planning to ensure data descriptions are accurate and can be slow.

McCabe praised the 1900 Cobol source conversion system offered by ICL as being "very pleasing and bug free". But he criticised the System 4 Cobol conversion system because it was slow, full of bugs and could not handle the library COPY facility.

## Defining level of service

A MEETING is to be held shortly between ICL and users to discuss recommendations by an ICL CUA committee that all users should have "serviceability agreements" in contracts to define the level of ser-

taken—uptime, reliability and resilience ratings, benchmark performance tests, etc.

But he believed that, working with ICL, some mutually satisfactory arrangement could be

# MPK

## Let's put you in the picture

The diagram illustrates the MPK architecture. It features a central 'SYSTEM SUPERVISOR' (labeled 5) which manages the system. It is connected to four 'FOREGROUND' processors (labeled 1, 2, 3, 4) and one 'BACKGROUND' processor (labeled 6). The foreground processors are connected to a '2900 xms Program running V04' block. The background processor is connected to a '2900 xms up to 31 bits' block. The system supervisor is connected to a 'PRINT/FILE HANDLER' block, which is connected to a 'DATA' block and a 'Tape' block. The system supervisor is also connected to a 'UP TO 4 PROCESSORS EACH HANDLING THEIR OWN BACKGROUND/INTERACTIVE TASK' block. The diagram includes a 'Printer' and 'Batch Control' block connected to the foreground processors.

vice they expect from ICL.

David Kelson, a member of the CUA executive council, told Computer Weekly that the aim of such agreements would be to provide users with a standard set of performance criteria which could be written into contracts as a definition of the service expected by the user.

He accepted that it would be difficult to define such standards because there were so many different criteria that could be

## CMC 5250 KeyProcessing

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more processors = more power  
more power = more work

**ABOUT** £3million is being invested by ICL in creating a £800 range compatible Common Target Machine interface to ensure systems programs are portable between VME/K and VME/B. The CCM was first mooted when the £800 was still in an embryonic New Range phase, but faded with the emergence of VME/K to a different design than first envisaged for the £800 range of operating systems.

ICL will be soft-pedalling the implementation of VME/K until after release K9V18 next February. This release, written to new CMM standards, would require users of earlier releases to change their systems significantly.

**CONFIRMATION** came from Peter Ellis that ICL is to make a viable, soon to be online automated tape library.



THE UNIVERSITY OF CHICAGO



## Japanese invest £2m in viewdata system

THE Japanese PTT Nippon Telephone and Telegraph is developing a viewdata system to handle the Katakana syllabary, reports the French paper *Electronique Actualités*.

NTT plans to invest over £2 million in the system for hardware alone. Software development will be financed jointly by NTT, broadcasting authorities and information providers such as newspapers.

Trial of the system, called Captain, for character, pattern and information network, is due to begin at 1,000 subscriber sites in August 1979.

The complex Japanese character set will require a 64K-

byte page store in the receiver, and adaptors are expected to cost about £250.

The system will be able to handle 3,000 different characters.

### Payroll service

A NEW payroll system called Payfact, put into service last month by Computer Management Group, is now used by more than 100 companies with a total of over 11,500 employees. The system runs as a bureau service every night of the week at all CMG's data centres and costs from £10 per payroll of 40 employees.

## EEC leads on user freedom

● From front page

the Conference of European CUA and, at the end of last month, it organised a conference in Paris on standards.

He said that the Commission was seeking user help in three main areas: standardisation, software portability and transnational applications. And he suggested that European users are likely to submit to the Commission recommendations on terms of contract.

But unless there was some financial help for users working on committees concerned with topics of international and national significance, the outcome, he said, "will be a mere fraction of what could and should be achieved."

## LETTERS TO THE EDITOR

### Layman needs to be better informed

I WAS very interested to read Computerview and not a little cheered to find that a responsible and reputable professional journal such as your own shared my views on this subject.

I was recently invited to open a discussion at the Institution of Electrical Engineers following a paper presented by Sir Ieuan Maddock on "Electronics - the challenge of the future". In my remarks I referred specifically to the "Horizon" programme in much the same terms as your

leading article. My statement was subsequently hotly contested by one of the journalists present who thought, mistakenly, that I was including the technical press in my condemnation of the only too popular "dinosaur" approach to technological innovation.

We in NRDC are both constitutionally and personally dedicated to the promotion of invention and innovation generally and to advances in electronics and computer applications in particular as being very much in the public and national interest at this point in time.

Regrettably, it is only too easy to speculate on the sociological and ecological problems that could arise if the pace of change were dictated solely by economic pressures. Fortunately, this is most unlikely to be the case, but in our view the public interest will not be best served by fuelling the large degree of apprehension or prejudice which surrounds a subject on which the layman needs to be much better informed.

W. MAKINSON  
Managing Director  
National Research Development Corp., London

### Reducing cost of labour to create full employment

BEFORE discussing the details of the different methods for reducing the cost of labour to create full employment, as discussed in your correspondence columns, it is worth pointing out that the general principle behind such policies has not yet been given sufficient consideration. For example, no such policy was considered by Barrie Sherman (Futureview, February 23), even in the form that Keynes proposed: reducing real wages by creating inflation.

Naturally, I would have been shocked if Barrie Sherman had suggested a further dose of the Keynesian solution with the lowering of workers' standard of living at a time when technological change is making large increases in real wealth possible. It does need to be appreciated, however, that the present phase of technological change is likely to bring a fall in the real value of labour, just as happened in the first industrial revolution.

This point was well understood at that time by Robert Owen and well expressed by his son: "Will any man who stands on his reputation for sanity affirm that the necessary result of over production is famine; that because labour produces more than even luxury can waste, labour shall not have bread to eat? If we can imagine a point at which all the necessities and comforts of life shall be produced without human labour, are we to suppose that the human labourer is then to be dismissed to be told that he is now a useless encumbrance which they cannot afford to hire?"

To me the message is simple: technological change can bring about conditions under which a large proportion of the population cannot live by the sale of their labour alone, and they should not be expected to do so. This should not mean that their labour (which can still have a significant value), should be wasted in the dole queue, where they are denied the opportunity of raising their standards of living and enjoying the sense of satisfaction that a

job can bring. Both national wage and labour subsidy policies promise to avoid such waste and should be given wider consideration. I hope Barrie Sherman and his research team will be among those to do this.

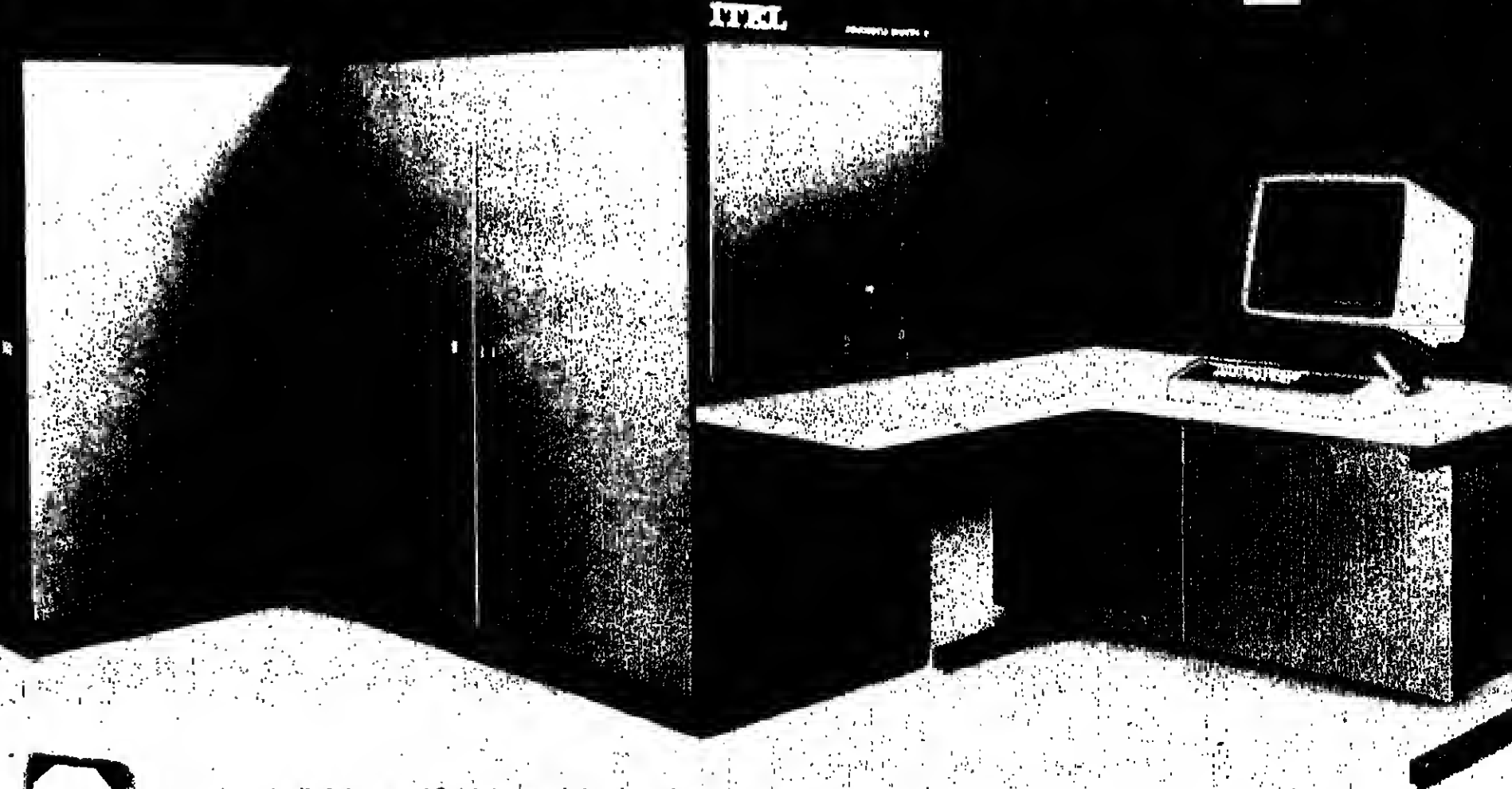
With regard to the distinction between a national wage (as suggested by John Harris and D. J. Grover) and labour subsidies, I cannot see how any major difference could arise in the long run, except that the former allows unemployment benefits to be included in the national wage, perhaps giving it a better image. This may well be important, but at this stage of the discussion when both policies are so far outside orthodox economic thought, the short-term advantage that labour subsidies have of enabling the raising of expenditure taxes without raising prices, makes them more immediately interesting.

I agree with Grover that lowering the cost of labour as a factor of production means that certain new technologies should not be introduced. This is especially true if they make a high demand on other factors of production such as, for example, energy. Indeed, many existing processes should be phased out because they waste scarce resources. (Incidentally, others should be phased out because they degrade labour by creating boring and unpleasant jobs.) It seems likely, however, that there are many applications for the new microprocessor technology which enable a saving of both labour and other resources. Such applications should obviously be greatly encouraged.

If it is true that the problem of unemployment can be solved by reducing the cost of labour (and it has yet to be shown that it cannot) and if the new technology can take much of the drudgery out of life then we should all look forward to great benefits from this next industrial revolution.

G. R. BEACON  
Research Fellow  
Leeds Polytechnic

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## Hotel system links up office functions

A TURNKEY hotel management system has been installed in the 850-bedroom Tara Hotel in London by Cura Consulting. The real time online system, Data Host, was developed by Sigma Data Computing Corp of Rockville, Maryland and uses hardware supplied by Four-Phase Systems.

The Tara Hotel and Cura are both owned by Aer Lingus, the Irish airline. The Tara is the first hotel in Europe to be equipped with the system, for which Cura has a distributorship agreement. Data Host automates both "front-office" functions — such as reservations, checking-in,

and account preparation — and "back-office" functions such as payroll, general ledger, and management reporting.

The telephone billing system is a good example of the scope of the system. Calls, dialled directly by a guest from his room, are recorded automatically by the system. The cost is then computed and added by the system to the customer's bill.

Cura Consulting is the consultancy, software and systems house division of Cura Data Processing, formed in Eire in 1986, the company became a wholly-owned subsidiary of Aer Lingus in 1972.

## Plessey wins US contract

THE news that Plessey has been awarded a contract, in collaboration with Collins Radio, to provide radio equipment for the US military, has been seen in some quarters as a consolation prize for its losing out on the two-year battle for international approval of an aircraft microwave landing system.

The struggle for MLS approval highlighted what could become a growing problem in de-

cision making. In that accusations and counter accusations abounded about false computer simulations of extrapolated test results.

Perhaps the classic case was the US simulation that "proved" the Plessey doppler system would not work at Brussels airport. Plessey, with the British Civil Aviation Authority promptly went there, set up the system, and showed that it did.

## Triumph Adler acquires Diehl Datensystem

A COMPLEX series of agreements between US multi-national, Litton Industries, and West German group, Diehl, will result in Litton subsidiary, Triumph Adler, acquiring the Diehl Datensystem company, which makes and sells very small computer and office systems. In return, Diehl group will get 12.5% of Triumph Adler's parent, Triumph Werke Nürnberg, with an option to increase this to 25%. Triumph Werke was 88% owned by Litton, whose

stake will now fall to about 80%.

Another Diehl subsidiary, Computer Technik Müller, which builds and sells up-market business computer products is involved in the agreement to the extent that Triumph Adler gets marketing rights to CTM products, which slot neatly into the office computers in the TA product line.

TA will also collaborate with yet another Diehl company, Eurofil, which manufactures

CMOS semiconductor components.

Meanwhile, under an separate agreement with the US firm, Portec, Triumph Adler is to manufacture under license the Portec XL40 distributed processing system and sell it in West Germany, Austria and Switzerland as the TA-1540, built directly and through dealers. Portec already has an agreement with the Spanish company, Secoluna, relating to the XL series. (CW, April 13).

## CDC chief hits out at US policy

ADDITIONAL joint ventures between Control Data and the Romanian government are to be established, but Control Data chairman, William Norris, blames the US government's export policy for the poor performance of the existing Rom-control Data venture which builds printers and other peripherals.

After encouraging our efforts to establish the joint venture, the US government so long delayed licences to export the required technology that some of the products were out-



moded by the time we received the go-ahead," he said. As a result, the venture remained unprofitable for three years. The new agreement with Romania runs for 10 years, and covers establishment of a local data services company, an R&D centre for applications software, procurement of CDC computers, rights to manufacture certain computers in Romania, and to assemble certain peripherals, and joint research and development undertakings.

Control Data last week

### NEWS IN BRIEF

#### Joining the operator game

FINDING "operator of the year" appears to be quite a popular pastime nowadays, and Wordplex has joined in the fun by organising a competition to discover the best operator of that word processing system.

More than 300 girls have been invited to answer nine questions related to the use of the company's wordprocessors. The winner will receive a £150 prize and three runners-up will get £25 each.

The awards will be made at the International Word Processing Exhibition at Wembley on June 8.

#### Partners

TALKS between Olivetti and Stack have culminated in Olivetti becoming a partner in the components specialists and bulk purchase company (CW, May 3). The company, based in Frankfurt, was formed three years ago by Control Data, ICL, Nixdorf and Plessey, to draw up specifications for semiconductor components required by all the companies and to gain the benefits of bulk purchase orders from manufacturers (CW, March 20, 1975).

#### B8800 for ICL

CONSIDERING its position as a major mainframe supplier to several ICL divisions, Burroughs is to supply a large scale, 100,000 instructions to the Plant Protection division at Farnham near Farnham at the end of the year. ICL Plant Protection currently runs a B3700 and B2700 at this site, and has recently placed a supply order with Nixdorf for multiple B8800 intelligent terminal systems for installation all over Europe (CW, March 30).

#### Faster access

TO speed access time on its IBM compatible disc subsystems Memorex has introduced a cache memory called the 3700 which uses charge coupled devices to store frequently used data. It can have between one and 8 Megabytes of CCM. Another IBM compatible disc subsystem, called the 3700, is developed a system which buffers and a powerful processor (CW, September 8, 1977).

#### Driving on

DISC drives with capacities of 63.9 and 128.4 Megabytes have been introduced by IBM for use with the System 34. The previous maximum disc capacity was 27.1 Megabyte.

#### EPSS open day

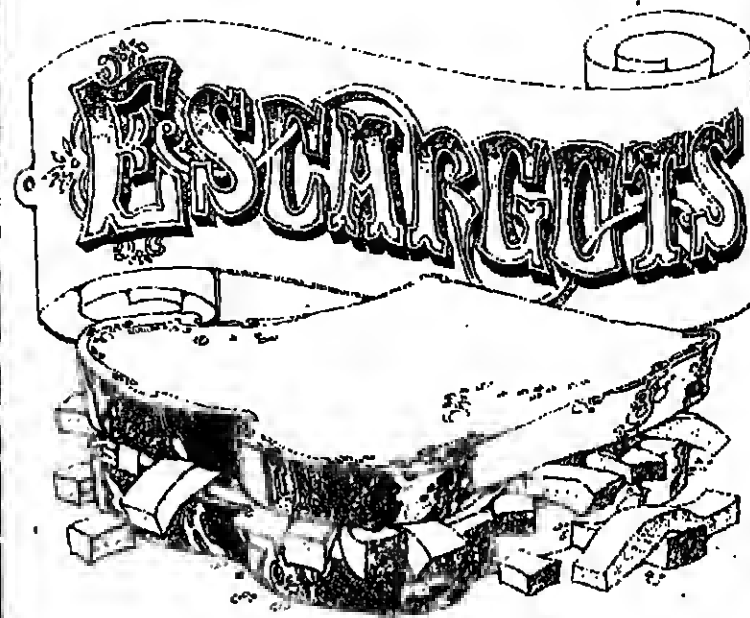
EUROPE's first demonstration of a public packet-switched service will take place on June 22, when the Post Office and 33 users of the Experimental Packet Switching Service co-operate in holding an open day.

#### Training centre

SPERRY Univac has opened a training centre in Hill Street, Birmingham. It replaces the company's two London training centres and will be used for customer training, systems analysis and sales training.

# Appointments

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POWER VS Ops.  
IBM 360/370 DOS GRASP Ops.

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What they get is an interview that gives them a fresh insight into their abilities and prospects in analysis, programming or operations, and that's conducted by someone who has knowledge of their area of work and experience of what it takes. For senior jobs, such an interview can last an hour.

Really, it's a case of being cruel to be kind. We'd probably make more money more quickly if we just asked you to fill in a form and then sent you along to a whole string of interviews in the vague hope that one of the jobs will turn out to be the right one.

But when we send you to an interview (and we won't send you to many), you can be sure that you stand a good chance of getting the job, and that the job will do things for your overall career.



### Knight Computer Services Limited

14 Old Park Lane, London W1Y 4NL  
Telephone: 01-491 4706.

Please send me an application form:

Name .....

Address .....

Phone No. ....

Staff Services Division of  
BOC Datasolve Group and  
a member of Computing  
Services Association

Knight

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your kind of people

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Rickmansworth 76699  
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ENGINEERING LTD

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# MYriad OPERATIONS

Computer Personnel Consultants

## PRODUCTION SUPERVISOR

S. LONDON

Non-Shift

£4500

This is an excellent opportunity for someone currently engaged in either computer operations or data control, and seeking promotion into a non-shift supervisory capacity.

The successful applicant will lead three small teams working on data preparation, operating, and data control, and will be responsible for ensuring the smooth flow of production work through a busy data centre. He/she will require a solid computer background and a strong personality since they will provide the initial user interface.

The Company is one of the largest and most successful service organisations in Europe with a multi-million pound turnover. Users are served by a network linking major cities in the U.K. and the Continent. The South London data centre is easily accessible from Surrey, Kent, S.E. and S.W. London using either private or public transport.

## UNIVAC OPERATOR

W. LONDON

£4000+

We are seeking an experienced operator to take responsibility for running a shift within a fast moving and progressive installation.

The company operates a medium size Univac mainframe running under OS/3. There are good career prospects available to keen and ambitious people, and the present vacancy is ideally suited to someone with approximately two years' experience of OS/3 and who can display the ability and confidence to take charge of a shift.

The successful candidate will join a friendly installation, where other benefits include 4 weeks' holiday, luncheon vouchers and a discount scheme for purchases of company products.

## IBM RJE OPERATIONS

LONDON/SURREY BORDER

To £3000 + S/A

Our client is a major international organisation and is currently seeking additional staff for its RJE operations. He will become involved with an international RJE network, IBM 360/57, 370/160 and 370/190 processors located at company headquarters, supporting data to data from equipment throughout the United Kingdom, Europe and North America.

Successful applicants will join a young and professional team working on a two shift rota, and will be able to offer at least one year's experience of IBM RJE operations.

These positions carry an excellent commencing salary accompanied by a valuable range of fringe benefits including a non-contributory pension scheme and annual bonus, so the person appointed can look forward to a secure and healthy future.

## DO YOU KNOW GEORGE?

BERKS

To £4300

If you know George then let your acquaintance be the start of a long and exciting career.

A leading organisation is always looking for competent operators to ensure that skills of either George II or III and be able to adapt and understand advancing techniques within the installation.

This is an opportunity to join a team of computer professionals and work in an environment where the workload is demanding and varied.

Both operators and senior operators are sought with six to eighteen months' operating experience respectively.

In reward for using your skills and initiative, attractive salaries are paid and supplemented by a generous payment for working within a three shift system.

24-hour answering service

Please telephone for a confidential discussion or write to:

30 Fleet Street London EC4A 3DF  
01-353 0981

## SENIOR SYSTEMS ANALYST SYSTEMS ANALYST

Suitable candidates will be assured of an exciting and rewarding career in a progressive and expanding company.

Systems installed or planned for the future include: On-Line Enquiry, Point of Sale, Order Entry, Financial Modelling, Production Planning, Stock Management and Remote Data Entry. Applications are programmed in COBOL and packages used include O-PAC, Accounting IV and Mark IV.

Competitive salaries and fringe benefits are offered and applicants should write or telephone for an application form to:

CM Hickson, Group Personnel Manager  
HEPWORTH Limited, Cleypit Lane, Leeds LS2 8AP  
Tel: Leeds (0532) 40265

**Hepworth**  
TAILORING

## Systems Programmer

£7,000 +

We represent a international manufacturing company, based in Scotland which has a positive and innovative approach to the development of software applications. One of the areas in which there has been significant progress is quality assurance and the company now wishes to

appoint a man or woman to head up an energetic quality assurance project team. The main areas of responsibility will be the provision of functional direction, technical guidance and co-ordination to a team of programmers engaged in the evaluation of new software projects. To ensure that the correct person is appointed, the company offers an extremely attractive remuneration package with the

salary level being determined by experience. Other conditions include a 35 hour week, pension and life assurance schemes and generous relocation assistance to this high amenity area of Scotland. (PA Personnel Services Ref: MV45/8409/CVW)

Initial interviews are conducted by PA Consultants. No details are divulged to clients without prior permission. Please send brief career details or write for an application form, quoting the reference number on both your letter and envelope, and advise us if you have recently made any other applications to PA Personnel Services.

PA Personnel Services

127 George Street, Edinburgh EH2 4JN Tel: 031-225 4481



A member of PA International

## WEST YORKSHIRE

ANALYSTS TO £5500

PROGRAMMERS TO £5100

Our clients are a major engineering organisation based in West Yorkshire, and looking to recruit a number of DP staff to help develop the computer installation into a major asset to the user departments. ANALYSTS are required with varying amounts of experience in either commercial or manufacturing systems and salaries will vary according to experience from £4700 to £5500.

PROGRAMMERS are required with a minimum of twelve months COBOL and preferably some PLAN or ASSEMBLER knowledge. Salaries according to experience from £4400 to £5100.

Conditions of employment are very good including substantial holiday allowance.

More details and early interviews by telephoning:

DAVID FISHER on 0422 58231 (DAYTIME) or 0552 881897 (7 p.m. - 9 p.m.)



Computer Recruitment  
Hullax (0422) 58231  
Clodens Road, Hullax

## COMPUTER STUDIES

A vacancy will exist as from September next for a

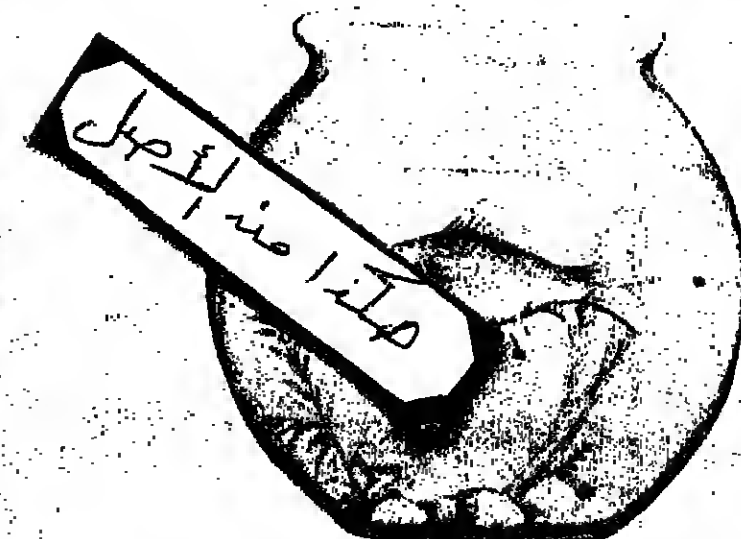
## PERIPATETIC TEACHER

to be attached to a consortium of schools in Birmingham to act as a Head of Department of Computer Studies. The city has on-line computer resources in most of its secondary schools and will be making rapid progress in the use of computers in the future with the installation of micro-computers in education. This post is rated up to Salary Scale 4, dependent on qualifications and experience.

Applications by letter to the first instance to:

The Director  
Birmingham Educational Computing Centre  
c/o Matthew Boulton College  
Hope Street, Birmingham B5 7EA

**BIRMINGHAM**  
CITY COUNCIL



## Are your horizons wide enough?

Are you going round and round in circles in a job with limited scope? Do you have skills and talents that can't be utilised where you are?

Can a Software House like Square One satisfy your needs - we'll try to help you find the answer at our next Open Evening in London. It will be an informal gathering where you can talk to some of the people who work for Square One and find out about the Company and its projects.

Come and have a chat over a beer and sandwich on Monday 15th May between 6pm and 8pm at 150 Regent Street. If you can't make it or need more information, then ring Anne Truelove on 02405 75231.

**One**  
Open Evening

JBA

## Systems Analyst

Midlands

c. £6,000

We have been retained by a well known international organisation to recruit a Systems Analyst to join the team developing commercial applications. The Company, with a very sophisticated installation, are currently working on on-line data collection and enquiry systems and plan to install real time applications using minicomputers.

The successful candidate will be an experienced systems specialist with a financial or manufacturing background including some time spent as a programmer. An ability to liaise with users is essential.

This is an excellent opportunity for a person with potential to advance with an expanding group. The salaries, which are negotiable, are above average and the Company offers excellent terms and conditions of employment, including assistance with relocation where appropriate.

Early interviews can be arranged in the Midlands.

In the first instance please contact:-

Jim Baker,  
JAMES BAKER ASSOCIATES,  
International Personnel Consultants,  
16 Maddox Street, London W1.  
Telephone: 01-491 4478.

## P.D.P. MINI COMPUTERS BRISTOL

Due to continued growth both through new and existing contracts our clients Jenson Computer Systems, a software House specialising in the marketing and development of commercial "on line" systems for P.D.P. mini computers require the following:

### Systems Support Analyst

To assist in the development and marketing of commercial software packages Jenson are particularly keen to recruit a Systems Support Analyst already having or with a specific interest in pre/post sales support.

Suitable applicants need not have had either mini computing or V.R.C. experience although this of course would be an advantage.

However, specific requirements will include previous design experience of commercial systems, implementation of financial systems would be of particular interest.

Salary - £8,250 + Expenses  
**Sanderson**  
EXECUTIVE RECRUITMENT  
TELEPHONE 0272 39302

### Project Leader

Required at middle-management level, Jenson wish to appoint an experienced Analyst whose essential qualities will include both the ability of men management with the D.P. expertise to autonomously control commercial projects.

Although prior involvement within a mini computing environment would be desirable commercial design and implementation experience would be of equal importance.

Salary - To £8,750

### Programmers

A requirement exists for various levels of Programmers with specific emphasis on senior Programmers having previously had "on line" experience utilising mini computers.

Applicants already having DEC/D.G., RSTS, using BASIC+ or File Tab would be able to command higher salaries.

Serious consideration will be given to main frame or VRC Programmers wishing to retrain on minis.

Salary - £3-£5,500

SA Princess Victoria Street  
Clifton, BRISTOL 5.

## Software Engineers

Advance and be recognised with Solartron

Our continued expansion programme and planned development have created excellent opportunities for Software Engineers to share this success story. It is desirable that applicants should possess a degree or equivalent in Engineering/Computer Sciences together with one/two years' relevant experience with an industrial programming environment.

The job function will entail the development and design of Assembler Code (initially PDP 11 and LSI II) and/or high level language programming in products general purpose programmes. Engineers are also sought to become involved in the support of current Software products.

We are based in pleasant country surroundings where housing, shopping and schooling are readily available. We offer competitive salaries and attractive company benefits which include non-contributory pension scheme, a really thriving sports and social club plus the opportunities to advance your career in a vital company. Make what is probably your best move so far by writing with brief but sufficient career details or telephoning to Tricia Davies, Personnel Officer, Solartron Electronic Group Limited, Victoria Road, Farnborough.

Farnborough (0252) 44433

**Solartron**



## Eurocom Data Limited

A member of the National Westminster Bank Group  
EUROPE'S LEADING COMPUTER OUTPUT MICROFILM  
BUREAU ORGANISATION  
LONDON-MANCHESTER-LEEDS-BIRMINGHAM

### SALES EXECUTIVES

Circa £7000 + CAR  
(Basic £4000-£5000 + Commission)

Eurocom Data Ltd. is a fast growing international Computer Output on Microfilm Bureau providing services through 5 centres in the U.K. and 6 further centres in Europe via Eurocom Data (Pty) Ltd.

Suitable candidates are likely to be successful VRC Salesmen who have a good working knowledge of Computer and Business Systems, and have consistently achieved Quota.

### PROGRAMMERS

We need analysts and programmers to help us develop and sell this new technology. You will be required to give technical support to the sales team by conversations to COM. Help your time will be spent utilising our own PDP 11. Data and other part interfacing with the customers' minicomputer, which offers experience in all the manufacturers' equipment operating systems.

You will have had at least two years' programming experience in COBOL and preferably an assembler language. A driving licence is essential.

We offer a starting salary of around £4,800, on a scale rising to £5,500 plus personal allowance and excellent fringe benefits after a qualifying period.

Applications to:

The Personnel Manager  
EUROCOM DATA LIMITED  
3 The High Street, Rickmansworth, Herts.

## Senior Analyst / Programmer

Iran Air requires a Senior Analyst / Programmer with a minimum of five years' programming and design experience on mini-computers, preferably IBM SYS/32, on financial applications. Based in Piccadilly the position offers much scope for travel and in the conversion and development of an on-line accounting package.

We offer a good competitive salary with many fringe benefits, working conditions are excellent and there are valuable travel privileges.

Please write with personnel and career details to the Personnel Manager, Iran Air, 73 Piccadilly, London W1V 0DX. Telephone 01-491 3656.

**IRAN AIR**  
The world's fastest growing airline

## COBOL PROGRAMMERS

CROYDON

With a minimum of one year's experience. You will be based at the regional headquarters of an international company developing systems for a variety of European countries. The programmers will become part of a project team developing applications for all aspects of business activities. The working conditions are excellent with a salary commensurate with ability and experience. Luncheon Vouchers, four weeks' holiday and contributory pension scheme.

Telephone Personnel Department, 01-866 8844 for an appointment, or write to: J. R. H. & H. E. (UK) Ltd., Lifford House, 2 Meson's Avenue, Croydon CR2 3NB.





## APPOINTMENTS LIMITED

Computer Personnel Consultants

### SYSTEMS & PROGRAMMING MANAGER

S.W. LONDON

£8500 + CAR

An international organization with computer centres at home and abroad is seeking a Systems & Programming Manager for their installation in S.W. London easily accessible from the Surrey and Kent countryside.

Whilst the person appointed will be given complete responsibility for existing systems the main area of activity will be controlling small-project teams developing a range of new applications from feasibility to successful installation.

Candidates should have a COBOL programming background coupled with a successful record of analysis gained in a commercial environment. Whilst experience in a similar capacity would be a distinct advantage applications from Senior Analysts able to demonstrate managerial skills and a successful record in the estimation, control and implementation of projects will also be considered.

In addition to first-class conditions of employment the Company offers an excellent commencing salary. A Company Car is provided.

24-hr. answering service  
Please telephone for a confidential  
discussion or write to:  
30 Fleet Street London EC4Y 1AA  
01-353 0981

## REAL-TIME SOFTWARE ENGINEERS MICRO-PROCESSOR APPLICATIONS ENGINEERS

South Coast

Up to £5,500

Our Client is an international organization with computer centres at home and abroad is seeking a Systems & Programming Manager for their installation in S.W. London easily accessible from the Surrey and Kent countryside.

Thurloe Executive  
30, Thurloe Place, London, SW7 2HJ  
01-584 8476

## PROGRAMMERS RENTOKIL LIMITED

EAST GRINSTEAD

Further programmers of varying experience required for mixed batch/on-line applications on ICL 1902T 64K disc/tape and ICL 1500 configurations using COBOL, PLAN and CDE.

Conditions of employment are generous with fringe benefits which include Contributory Pension Scheme, Profit Share, Free Staff Restaurant and Staff Discount. There is an active Sports and Social Club.

Situated on the Kent, Surrey and Sussex borders, East Grinstead offers pleasant and varied living and recreational facilities.

Salary up to £5,000 p.a.

Write or telephone: A. Appichy  
Rentokil House  
Garland Road  
East Grinstead  
West Sussex  
RH19 1DY  
Tel. E.G. (0342) 27171

## OCR SCANDATA

### SUPPORT ANALYSTS Up to £6000 plus car

OCR Scandata is the UK subsidiary of one of the world's leaders in the exciting and rapidly expanding field of document reading and key-to-disk systems, particularly in banking and financial applications. We are now looking for self-starting, Support Analysts (men or women) able to take an active technical role in:

- \* post-sales presentations, brochures, demonstrations
- \* post-sales installations, special software development
- \* customer training

Applicants should have significant business systems and programming experience, ideally on minis, and should be willing to travel to customer installations throughout Europe.

Please apply in writing or phone  
European Support Manager  
OCR Scandata Ltd.  
Queens House, Holly Road, Twickenham TW1 4EW  
Telephone: 01-891 0188

## NORTH WEST THAMES REGIONAL HEALTH AUTHORITY REGIONAL COMPUTER SERVICE

### SYSTEMS DEVELOPMENT OFFICER (Scale 23)

SALARY SCALE £6,700-£8,047 PER ANNUM  
(INCLUDING LONDON WHITING AND SUPPLEMENTS)

The North West Thames Regional Health Authority is seeking a Systems Development Officer for its Regional Computer Service. The successful candidate will be responsible for the development and implementation of computer systems for the Authority's various departments. The post is a full-time position and the successful candidate will be required to travel throughout the region. The salary scale is £6,700-£8,047 per annum including London Whiting and Supplements. Applications should be sent to the Personnel Officer, North West Thames Regional Health Authority, Regional Computer Service, 40 Southwark Street, London SE1 1SU. Closing date: 25th May 1978. Equal opportunities are encouraged.

Application forms and further particulars from the Personnel Officer, North West Thames Regional Health Authority, Regional Computer Service, 40 Southwark Street, London SE1 1SU. Telephone: 01-593 2011. Fax: 01-593 2182. Closing date: 25th May 1978. Equal opportunities are encouraged.

## SOUTH LONDON/ CROYDON/SURREY

ARE YOU AMBITIOUS?  
DO YOU WANT TO WORK  
FOR A GROWING COMPANY?

Superdrug have rapidly expanded from 1 shop, employing 3 people to 75 shops, employing over 1,100 people, and has a continuing growth pattern.

Our Computer Department is also growing to cope with this expansion.

We now need a No. 2 for our Department.

This person should be young and have RPGII experience. The department itself is still quite small so there is complete involvement with the work on our System 3/10 and plenty to prepare for our System/34 which is on order.

The salary will be around £5,000 per annum.

Please contact:

Mr. Howard  
SUPERDRUG STORES LIMITED  
Felnex Trading Estate  
190 London Road  
Wallington, Surrey, SM6 7EG  
Tel: 01-669 2151

## Computer Systems Professionals

Rank Xerox, one of Europe's leading companies in the field of computer systems and information handling, wish to recruit three computer systems professionals to its London office. The successful candidates will be responsible for the design and implementation of computer systems for its various departments. The post is a full-time position and the successful candidate will be required to travel throughout the region. The salary scale is £6,700-£8,047 per annum including London Whiting and Supplements. Applications should be sent to the Personnel Officer, Rank Xerox, 40 Southwark Street, London SE1 1SU. Closing date: 25th May 1978. Equal opportunities are encouraged.

### Systems Consultant c. £7,000

For this position we need a highly motivated self-starter who will respond favourably to the challenges of working in a dynamic and accountable environment.

The successful applicant will have significant experience in the planning, design and implementation of computer systems which will perform a key role in the management of multinational organizations.

These systems will utilize a large network of VME/11 and high speed printers on-line to an IMS database in real time 370/158/59/VS environments.

The position demands significant previous experience in the design and implementation of computer systems which will perform a key role in the management of multinational organizations.

Applicants should be prepared to accept a high level of responsibility and to work long hours. The successful candidate will be required to travel throughout the region.

The salary will be around £7,000 per annum. Applications should be sent to the Personnel Officer, Rank Xerox, 40 Southwark Street, London SE1 1SU. Closing date: 25th May 1978. Equal opportunities are encouraged.

Please contact:

Mr. Howard  
SUPERDRUG STORES LIMITED  
Felnex Trading Estate  
190 London Road  
Wallington, Surrey, SM6 7EG  
Tel: 01-669 2151

Systems Analysts  
c. £5,500

Two Systems Analysts are required to work on existing systems and will be expected to bring a wide range of skills in feasibility studies, system design, programming and liaison with users and business.

Applicants should be prepared to accept a high level of responsibility and to work long hours. The successful candidate will be required to travel throughout the region.

The salary will be around £5,500 per annum. Applications should be sent to the Personnel Officer, Rank Xerox, 40 Southwark Street, London SE1 1SU. Closing date: 25th May 1978. Equal opportunities are encouraged.

Please contact:

Mr. Howard  
SUPERDRUG STORES LIMITED  
Felnex Trading Estate  
190 London Road  
Wallington, Surrey, SM6 7EG  
Tel: 01-669 2151

RANK XEROX  
ENGINEERING GROUP

# WEST YORKS

## ANALYST/ PROGRAMMER

to £3,500

A programmer with approx. 2 years' experience, seeking chance to move into systems. Total involvement in a wide range of applications, including liaison with users, low level language advantage.

## SENIOR SYSTEMS ANALYST

TO £5,500

A key position in an expanding department control of small enthusiastic team. Major planned developments include warehouse/ despatch, product explosion and management systems.

## SYSTEMS ANALYST

to £4,500

Self-starter with ability to use own ability. Full involvement in analysis design and implementation of major new systems. Real time systems experience an advantage.

## THE BENEFITS

Small team, make own decisions.  
Promotion from within.  
Involved in a wide range of projects.  
Real time.  
Subsidised BUPA Sell/Wife.  
Subsidised canteen.  
Relocation assistance.

## PLEASE CONTACT

73/75 ALBION STREET, LEEDS 1  
PHONE: IRENE ROGERS 0532 36822

INTERVIEWS CAN BE HELD LOCALLY

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## BERTRAM COMPUTER PERSONNEL

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MANCHESTER  
061-236 4593

BIRMINGHAM  
021-643 4433

COVENTRY  
0203 52171

A Division of BERTRAM PERSONNEL GROUP LTD

## JBA

### Development Programmers

Hertfordshire up to £7,000 +  
The software development group of this highly progressive computer terminal systems manufacturer are expanding their team of programmers. The work involves long-term development of operating software incorporating data communications networks and microprocessor technology. A sound knowledge of ASSEMBLER and one other language is essential. Successful candidates will enjoy a delightful working environment, an interesting mix of practical involvement and the definite possibility of career progression in the group.

Generous relocation package is offered together with up-market salary. Contact: Mike Creamer

Software Programmers -  
Minis/Micros

Herts to £7,000  
This is an exciting opportunity for experienced software professionals to join an expanding organisation which specialises in the application of Computers to industrial process control and automation. Ideally applicants should have more than a casual knowledge of software in the areas of Compilers, Assemblers, Interactive Languages, Communications and Real-Time operating systems. This is a high technology environment, with a customer base ranging from petro-chemical, pharmaceutical, and steel companies to public authorities.

Excellent salaries and conditions of employment are offered and relocation expenses will be paid where necessary. Contact: Margaret Stevens

Analyst/Programmers  
Midlands c. £5,000

A large international manufacturing organisation is expanding its data processing department and has a requirement for two Analyst/Programmers to join the development group.

Candidates must have at least two years experience as a programmer, preferably with COBOL on a mainframe, and have been involved with the design of commercial systems. Knowledge of on-line or real-time techniques would be an advantage.

The company can offer realistic salaries and a real career opportunity. Contact: Jim Baker

For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

JAMES BAKER ASSOCIATES, International Personnel Consultants  
16 Maddox Street, London W1. Tel: 01-491 4478

### Technical Author

Hertfordshire up to £7,000 +  
Our client, a U.S.A. manufacturer of intelligent terminal systems and associated equipment, seek an experienced Author to join their documentation group, which provides comprehensive software manuals. The successful candidate will be one who can work without supervision, enjoys responsibility, and whose technical competence commands respect. The position would ideally suit a programmer or analyst with a flair for documentation and an interest in technical communication.

Friendly working environment, excellent relocation package, and good career prospects. Contact: Mike Creamer

Systems Analyst/Project Leader  
North London c. £6,500

Continued expansion and development within our clients organisation has created a vacancy for a capable Analyst to join a product development team. This small but highly motivated team has total responsibility for the design, implementation and support of a major Accounting package. Applicants should have a PL/I programming background and have been involved with systems development for some three years. Experience of commercial applications would be an advantage. This is a key appointment within a well established bureau therefore salary will reflect the importance of the post.

Traineé Customer Support Specialists  
All areas up to £5,000

Our client, an international computer manufacturer, has opportunities for staff to join a training scheme to become Customer Support Specialists. The course which will be in London includes software applications and operations activities, is expected to last six months and will have a heavy practical content.

Applications are invited from people with about nine months programming experience preferably in a commercial environment (probably using COBOL). A business studies qualification such as INI or degree in economics, law, business studies, systems analysis, would be an asset.

This is an exciting chance to join a professional organisation and receive first class training. Subsequent assignments will be available in most parts of the UK. Excellent salaries and large company benefits. Contact: Jim Baker



# MARTINS COMPUTER SERVICES

The D.P. Recruitment Specialists for the Midlands/West Country areas

## MANAGEMENT

**COMPUTER MANAGER** required by our client and engineering group to implement and control the installation of a Honeywell 52 Series computer. Practical experience with engineering production and financial applications essential. Area: Staffs. Salary up to £7,500. Ref. M18.

**SUPPORT MANAGER** for mini computer manufacturer. At least 5 yrs. in commercial systems. Previous mini support experience an advantage. Area: Birmingham. Salary circa £6,000 plus company car. Ref. M13.

**SYSTEMS AND PROGRAMMING MANAGER**. Must be experienced with IBM mainframe and mini hardware. Languages: Assembler and Cobol, using batch and real time. At least 5 yrs. in O.P. Area: Birmingham. Salary to £7,000. Ref. M14.

**COMPUTER MANAGER** required for a systems mini installation with on-line terminals. At least 1 yr. basic plus under RST5. Some supervisory experience an advantage. Area: Birmingham. Salary circa £4,500.

## PROJECT LEADERS/ SYSTEMS ANALYSTS

**PROJECT LEADER** at least 4 years' plus experience in Commercial Systems. On-line experience an advantage. Area: Coventry. Salary to £6,000. Ref. SA24.

**PROJECT LEADER**. Responsible to Group Date Processing Manager, at least 2 years' Production Planning and Control Systems, plus a formal programming background in Cobol or RPG. Experience in a small maintenance and terminals required. Area: Worcester. Salary to £6,500. Ref. SA25.

**SENIOR SYSTEMS ANALYSTS**. At least 5 years in O.P. Preferably experienced on ICL hardware developing Real Time. Area: Leicester. Salary to £5,500. Ref. SA132.

**SYSTEMS ANALYST**, at least 3 years' in Programming and Analysis. Area: Bristol or Somerset. Salary to £5,000. Ref. SA131.

**ANALYST/PROGRAMMER**. 2 years' plus experience in Cobol and Plan plus some Analysis. Area: Nottinghamshire. Salary: £4,500. Ref. SA130.

**SENIOR SYSTEMS ADVISOR**. Required by maintenance manufacturer for pre- and post-sales work. At least four years in Commercial systems including a working knowledge of Cobol or RPG 2. Area: Midlands. Salary: £5,750 plus generous car allowance and expense. Ref. SA133.

**SENIOR SYSTEMS ANALYST**, at least 4 years' plus experience in Commercial Systems with knowledge of Cobol or Mini Computer Languages. Area: Birmingham. Salary to £6,000. Ref. SA128.

**SENIOR TECHNICAL ADVISOR** required by Major Mainframe manufacturer. At least 5 years' systems experience with an in-depth knowledge of most Commercial applications. Area: Birmingham. Salary c. £6,000. Company car supplied. Ref. SA126.

**PROJECT LEADER/PROGRAMMING**. At least 8 years in O.P. with On-line and database experience. Area: Lincolnshire. £5,000. Ref. M24.

**SENIOR SYSTEMS ANALYST**. Owing to expansion a number of positions have arisen. Candidates should have a degree plus On-line or Database experience. Area: Birmingham. Salary to £6,800. Ref. SA123.

**DATABASE OPERATOR** at least 5 years programming experience with in-depth knowledge of IMS. Area: Birmingham. Salary to £6,000. Ref. SA105.

**TECHNICAL SUPPORT PROGRAMMER**. Must have communications experience on ICL hardware. Area: Bristol. Salary: £5,500 plus bonus. Ref. P263.

**SENIOR COMPUTER AUCHTOR**. At least 5 yrs in O.P. Practical experience in auditing with a background of systems and programming. An accountancy qualification an advantage. Area: Birmingham. Salary circa £6,000 plus car. Ref. M510.

**PROGRAMMER/ANALYST**. At least 3 yrs' working in Cobol. Area: Nottingham. Salary: £5,000. Ref. P261.

## SENIOR PROGRAMMERS/ PROGRAMMERS

**PROGRAMMER/ANALYST**, at least 1 year's experience in Cobol and Assembler plus knowledge of at least 1 Mini Language. Area: West Greenwich. Salary: £5,000. Ref. M18.

**CONSULTANT PROGRAMMER** required by a Time sharing bureau. Degree required plus experience of programming in APL. Area: Midlands. Salary: £4,500 plus car. Ref. P242.

**PROGRAMMER/ANALYST** for Vantage Datapoint Mini. 1 year plus experience in Database, RPG II or a similar language. Area: Birmingham. Salary: £3,500. Ref. P238.

**PROGRAMMER/ANALYST** required for Systems 3 installation working directly under Computer Manager. 2 years' plus RPGII. Area: Birmingham. Salary: £4,000. Ref. P235.

**PROGRAMMER** required by a Birmingham Finance House. 1 year plus Cobol. Area: Birmingham. Salary range £3,500-£5,500. Low interest mortgages and loans available. Ref. P234.

**PROGRAMMERS**. 2 years' plus experience in Basic+ or experienced in other languages and willing to be re-trained in Mini Languages. Area: Nottingham. Salary: £4,000-£5,400. Ref. P232.

**SUPPORT SPECIALIST** required by Mini Manufacturer at least 1 year experience in Assembler. Area: Birmingham. Salary to £5,000. Ref. P227.

**PROGRAMMER**. 1 year plus PL1 or Assembler, knowledge of Circa or IMS an advantage. Area: Birmingham. Salary to £4,500. Ref. P205.

**PROGRAMMER/ANALYST**. 2 years' plus experience in Cobol. Area: Huddersley. Salary to £4,000. Ref. P164.

**LEAD PROGRAMMER**. At least 4 years' experience in IBM Cobol and Assembler using DOS/VS with CICS. Area: Bristol. Salary: Neg. Ref. P188.

**PROGRAMMER**. 1 year plus Cobol. Area: Northamptonshire. Salary: to £3,500 plus subsidised mortgage. Ref. P165.

**PROGRAMMER**. 2 years' plus Cobol, preferably IBM. Area: Leicester. Salary: to £4,500. Ref. P175.

**PROGRAMMER/ANALYST**, at least 3 years' experience in Cobol, Fortran or Micros. Plus On-line experience. Area: Birmingham. Salary to £5,500. Ref. P160.

**ANALYST/PROGRAMMER**, at least 2 years' programming in Basic+ or Cobol at RPGII. Area: Bristol. Salary: to £5,500. Ref. P32.

**CHIEF PROGRAMMER**, responsible for a small team of programmers. At least 3 years' IBM. Area: Lancashire. Salary £4,750. Ref. P248.

## OPERATIONS

**CHIEF OPERATOR**, at least 8 years' experience on IBM 380/370 range under OS, VS, APL, CICS and RJE Terminals. Area: Staffordshire. Salary to £5,500. Ref. O100.

**NETWORK OPERATOR**, at least 4 years' experience in IBM hardware, knowledge of Data communications and transmission with RJE network. Area: Worcester or Staffs. Salary: Neg. Ref. O92.

**OPERATIONS SUPERVISOR**. Days only. At least 2 yrs' experience on 370 DOS/VS including JCL. Area: 74 yrs plus. Area: Wolverhampton. Salary £4,500. Ref. O116.

**OPERATIONS ANALYST**. General knowledge of IBM operating systems including JCL. At least 1 yr. in a similar position. Area: Staffs. Salary: £4,000. Ref. O101.

**SENIOR OPERATORS & OPERATORS** with at least 2 years' experience on IBM 370 under OS, VS or APL. Area: West Midlands. Salary: Neg. Ref. P192.

**DATA 100 OPERATORS**, at least 12 months' experience in Operating a Terminal or Mainframe. Area: Birmingham. Salary to £4,000. Ref. O126.

**IBM COMPUTED OPERATIONS** required for following areas: Cheltenham, Redditch, West Bromwich, Coventry, Huddersley, Birmingham, Leicester, Wolverhampton. Salary range £3,500-£4,000.

**IBM OPERATIONS**. Birmingham. Stoke Newington. Coventry. Wolverhampton. Salary range £3,500-£4,000.

**HONEYWELL OPERATORS**. Birmingham. Wolverhampton. Cheltenham. Salary range £3,000-£4,000.

## GRADUATES

Are you a graduate this year? If so we have a number of clients who are recruiting Graduate Programmers and Analysts for the Midlands Area. Salary range £3,000-£4,000.

We have many more O.P. positions on our register in all areas of the Midlands/West Country.

Contact: Graham Aston, M.E.C.I.  
MARTINS COMPUTER SERVICES, First Floor, Western House, Opposite Albany Hotel, Smallbrook, Queensway, Birmingham B5 4HQ  
Telephone 01-843 2111. 24-hour answering service. Evenings and weekends 021-454 0331.

We are now able to interview until 5.30 p.m. and Saturday morning by appointment.



**WYRE BOROUGH COUNCIL**  
Borough Treasurer's Department  
Appointment of  
**SENIOR ANALYST/ PROGRAMMER**  
Salary S.O. 1/2-£4,759-£5,512  
Inclusive of Supplements

Applications are invited for the above post from persons with several years' systems experience and a programming background which includes Cobol and/or PL1. The successful applicant will take responsibility for systems development from conception and design to implementation and will be responsible for the selection and negotiating with representatives of user departments. Local Government experience is desirable but not essential. The Council operates an ICL 2903 computer with DOS and VS/VS2 and a V.O. II. The Council would be prepared to consider the provision of housing accommodation and assistance towards the cost of removal expenses will be given if appropriate cases.

The Borough of Wyre is situated on the Tyne Coast and includes two seaside resorts and a large rural area of a scenic beauty including the Ribblesdale Fells. The Borough Treasury is at Fleetwood.

Applications should be submitted to the Borough Treasurer, P.O. Box 1, Town Hall, Fleetwood by 3.00 p.m. 1978.

## Computer Programmer

c. £4,000 p.a.

Our client, one of the world's leading manufacturers of diesel engines based in the Greater Manchester area, requires an additional Programmer for their newly installed ICL 2903 Computer.

Currently being used for salaries, rates and purchase ledger work, the company now wish to utilise the Computer fully on production and quality control. A Senior Organisation and Methods Manager will be responsible for planning and co-ordination in this end.

Applicants, who must have a minimum of 2 years' experience in industry, or service for military or in Cobol language, preferably ICL 2903, will work as part of a small team consisting of Senior Programmer and one Trainee.

Usual established company benefits including pension and sickness scheme.

Please contact: June Standish  
(061) 235 5401, ext. 52

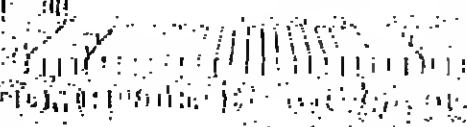
Applications from both men and women are welcome.

To £7K **SENIOR PROG** Kent  
A wide variety of applications is being sought for clients, including scientific systems, ranging from mainframes and minis. Familiarity with PL1, BAL, DOS and COBOL advantages.

c£5.76K + bonus **SENIOR S/A** Slough  
Some 2 years' experience including COBOL, programming and a good ability to specify, design and implement an efficient data processing system is required in this ICL 2313 environment.

To £5.5K **SYSTEMS PROG** Lelce.  
A leading software organisation requires ASSEMBLER and JCL operators to work on powerful main systems, primarily with civil engineering applications.

188 Finchley Road, London, NW3 6HP



## HESTAIR STANLEY LIMITED RPG II PROGRAMMER

We are looking for an experienced RPG II Programmer to work on our IBM machine at Ashford. Currently, this is a disc-based system 3/10 but there are plans to change to a System/34 with vdu's within the next two years.

The ideal candidate will have 4-5 years' experience of both languages and machine and will have worked on both production control and accounting systems. We do not have, or intend to have, a large computer staff and therefore the qualities of adaptability and initiative are important. The salary is negotiable and is unlikely to be a problem for the right person.

Hestair Stanley, a part of the Hestair Group, is a major manufacturer of precision seed drills and other agricultural machinery. Both the group and the company have expanded rapidly over the past few years, and further expansion is planned.

Those interested should apply in writing to:  
J. A. Chatter  
Hestair Stanley Limited  
Golfview Way  
Ashford  
Kent, TN23 1 PG  
giving details of their career and experience.

## MANAGER— COMPUTER SYSTEMS DEVELOPMENT

Ampex, a worldwide leader in magnetic recording and storage technology, needs a Manager of Computer Systems Development (male or female) for its European Operations.

In this position you will be responsible for the selection of minicomputer hardware for Ampex Regional Sales Offices and development of software for sales/order entry and financial reporting and control systems.

Ideally your background should include:  
—Experience with either IBM, Data General, DEC or Hewlett-Packard Minicomputers  
—Experience in Cobol Programming  
—Familiarity with Data Communications Protocols.

Initially you will spend several weeks at Corporate Headquarters in California. Your permanent base will be in Reading, England with extended assignments on the Continent.

We offer an excellent compensation package. Please submit your resume with salary requirements to:

J. Van Der Dussen  
Ampex International  
Acres Road  
Reading  
RG2 0QR

**AMPEX**

**COMPUTER PERSONNEL APPOINTMENTS LTD.**  
Career Specialists and Consultants for  
**D.P. MANAGERS, SYSTEMS ANALYSTS, PROGRAMMERS AND OPERATORS**  
Midlands, Northern Counties and Scotland  
For application forms apply to:  
95 New Street, Birmingham B2 4DL. 021-843 0951 or Tel 01-723 5334

## WE NOW HAVE THE BEST JOBS!

**OPERATORS/SHIFT LEADERS**  
**TO £4000 Inc.**  
W1  
Here is a very nice job. A 2-shift system having ICL 1900 equipment using GIL. Vacancies exist for 2 Operators and a Shift Leader. A nice first involved in Consumer Products. Active S.S. Club, cheap BAR and restaurant.  
CW 19/1 Patrice.

**OPERATORS**  
**TO £4500 Inc.**  
W1  
If you are into DOS/VS then this 2-shift system, no nights, will be attractive to you. They provide a high basic salary and 4 weeks' holiday, and you will work for an international company.  
CW 19/2 Patrice.

**SNR. OPS/OPERATORS**  
**£4000 to £5500 Inc.**  
N. LONDON  
A major IBM 370/OS user is offering really excellent perks including high salary and paid overtime plus paid removal expenses. You must have a minimum 1 yr. OS experience though.  
CW 19/3 Patrice.

**OPERATORS**  
**£4000 Inc.**  
W. LONDON  
Experienced ICL GIL & GIM operators are urgently required by this go-ahead commercial organisation. Perks include 21 days holiday, flexible subsidised canteen and a normal 3 shift system.  
CW 19/3 Patrice.

**SYSTEMS ANALYSTS**  
**TO £6500**  
MID EXSEX  
A major manufacturing company is involved in expansion plans within their D.P. department and requires experienced commercial analysts especially those with real-time application involvement. Although ICL equipment is used your actual machine experience is unimportant. This firm offers generous relocation expenses and 4 weeks' holiday.  
CW 19/7 Annette.

**SYSTEMS ANALYST**  
**TO £6500**  
NR. WOKINGHAM  
A major user of large Univac equipment with an existing real-time Database application to develop requires competent experienced applicants. Usual large company perks and relocation expenses, etc.  
CW 19/8 Annette.

**FREELANCE PROGRAMMERS**  
**TO £260 p.w.**  
Apply NOW for the latest vacancies. IBM, HONEYWELL, DEC & ICL programmers welcome. Earn a summer holiday paid break plus an attendance BONUS. Ask for the Contracts Officer on 01-995 5485.

## SYSTEMS PROGRAMMER

**City**  
A large and highly respected financial institution is seeking a capable and imaginative OS or OS/VS Systems Programmer to work in their City based installation. They are using two IBM machines — a 370/148 and a 370/158, running under OS/VS in both Online (Date Base) and Batch Processing modes, hence a background in other discipline would be equally acceptable.

The ideal candidate would have some operating experience, with a general programming background, preferably in ASSEMBLER or PL1, as well as a minimum of around 18 months in OS or OS/VS Systems Programming. Since there is a heavy commitment in the Stocks and Shares field some exposure in this, or in any other financial area, would be an advantage.

Salary will be totally dependent upon ability and experience and will not prove a limiting factor for the right person, so if your experience tallies in any way please contact us at once.

## PL1 PROGRAMMERS

**City**  
A major financial organisation needs programmers with 2 years good commercial experience to join their expanding DP department in the city. They currently operate a twin IBM 370/138 system, running under DOS/VS, and have a comprehensive communications network, so any knowledge of CICS would also be an advantage.

In addition to a competitive starting salary and excellent career prospects, the company offers interest free Season Ticket Loans; free Life Insurance on Annual Bonus scheme, and a 3% Mortgage.

## FORTRAN PROGRAMMERS

**London and the Home Counties**  
We have outstanding opportunities for all levels of Fortran Programmers with a background in any of the following:—

ENGINEERING  
TECHNICAL SUPPORT  
GRAPHICS

Positions exist within well known software houses, bureaux, manufacturers, and international engineering organisations; all offering good salaries and benefits combined with excellent career prospects.

Reference JC19/6

£4000 to £7000

Reference SD19/3

£4000 to £7000

Reference SD19/6

## SENIOR SYSTEMS ANALYST

**West End**  
£6000 to £7300  
An opportunity has arisen for an experienced and articulate Systems Analyst to progress into a more demanding and responsible position, leading and co-ordinating the work of a team of three other analysts.

The installation comprises an ICL 1903 machine running under GEORGE II, and an extensive Real Time system utilising DRIVER and COMMS MANAGER. Experience in any of these areas would be highly desirable, as would a programming background in either COBOL or PLAN.

You should have at least 4 years total DP experience, 2 years of which should be in Systems Analysis, and during this time you ought to have installed 2 major systems. The work will cover many different projects, will involve a wide area of systems and applications, and will give a great deal of experience and satisfaction. Altogether a position with plenty of scope, challenge and rewards, the high salary reflecting only a part of the total package.

## COBOL PROGRAMMERS

**West End**  
£4500 plus mortgage  
One of the world's largest insurance companies situated in the heart of the West End has several vacancies for programmers with a minimum of 18 months' experience. These positions would be ideal for programmers who wish to progress shortly into Systems Analysis.

The hardware in use is an IBM 370/168 running under OS/VS, with a large telecommunications network, and thus will provide valuable experience in this lucrative field.

The company offers a high starting salary, and a first class benefits package which includes Flextime, free lunches, a Non-Contributory Pension Scheme, plus a Subsidised Mortgage.

## REAL TIME SPECIALISTS

**Central London**  
£4000 to £8000  
One of this country's most respected software houses has a number of opportunities in their Real Time Systems Division based in Central London.

Positions exist at all levels from Programmers and Analysts through to Consultants, Assembler or Fortran experience in any of the following areas:— Message Switching, Production Control, Military Systems or Communications, gained on Minis or Micros would be suitable.

An ability to meet and communicate with clients, an outgoing personality and the willingness to pick up new machines and languages is essential.

If you believe that you could comply with the above specifications and would like a rewarding position with an excellent salary and prospects, ring us immediately.

Reference SD19/3

**Datascene Recruitment Ltd**  
Sceptre House  
169-173 Regent Street  
London W1R 7FB

**01-439 7871**  
24 hour answer phone

## RESERVATION SYSTEMS

T/P — DATABASE — MINIS

## PROJECT LEADER

(LONDON or BRISTOL) to £7,300

## SENIOR PROGRAMMERS

(BRISTOL) to £5,800

PSL is a systems house supplying turnkey systems to companies in the UK and Europe. We are setting up a group to develop reservation systems using Honeywell Level 6 mini computers.

**A PROJECT LEADER** is required to develop and implement a system for a client in Central London. It requires excellent Man/Machine interface, and yet must be capable of high transaction throughput in a 100% secure environment.

**TWO SENIOR PROGRAMMERS** are needed to develop transaction processing systems. Based in Bristol they will be leading members of our systems centre and will develop projects for use throughout the UK and Europe.

Initially please contact **ANDREW SANSON** on 01-878 7861.

**PSL** 328 Upper Richmond Road West, London SW14  
Telephone 01-878 7861

## BARR AND STROUD

## PROGRAMMER ANALYST

GLASGOW

We are a well established specialised engineering company with a wide range of precision, optical and electronic products.

We are looking for a Programmer/Analyst to work on Production Control and Bill of Material Systems. The work will involve collaboration in the design and programming of these systems or in the selection and implementation of appropriate packages.

Candidates should have some experience of Factory Control Systems, a knowledge of RPG 11 and the ICL 2903 or 1900 is desirable.

Full details of age, education and experience should be submitted in writing to:

The Personnel Manager  
**Barr & Stroud Limited**  
Annisland Glasgow G13 1HZ

## COMPUTER MANAGER

**SALARY circa £5,500**  
required by a rapidly expanding subsidiary of a public company. Duties include:  
\* Analyst/programming experience, preferably COBOL  
\* Ability to control small computer staff  
\* Ambition and dedication to the success of our replacement computer  
\* Age 23-30.

We offer:  
\* Pleasant working conditions  
\* Good prospects within the company/group.  
\* The opportunity to control an exciting new computer installation in a commercial environment.

Ring or write for application form to  
**T. C. OWLES**  
SDS Business Ltd,  
80 Great North Road  
Hatfield, Herts. Tel. Hatfield 80321  
A Hestor Company



# THIS IS UP YOUR STREET



**UXBRIDGE — MIDDLESEX  
SYSTEMS CONSULTANTS**

**SYSTEMS ADVISERS**

**OPPORTUNITIES FOR TRAVEL  
THROUGHOUT THE UK**

TELEPHONE OR WRITE TO US NOW TO ARRANGE FOR AN INTERVIEW

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**SPECIALISTS IN DP AND EXECUTIVE RECRUITMENT**

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WE ARE ACTING FOR ONE OF THE LEADING U.K. GROUPS ARE ENGAGED IN LARGE SCALE REDEVELOPMENT OF THEIR IBM BASED SYSTEMS.

IF YOUR EXPERIENCE MATCHES THE FOLLOWING REQUIREMENTS, THEN YOU SHOULD CONTACT US AND IN DOING SO TAKE THE FIRST STEP FORWARD IN MAKING ONE OF OUR APPOINTMENTS YOURS.

- (a) PROGRESSED THROUGH PROGRAMMING INTO A SYSTEMS ROLE OR MOVED INTO D.P. FROM A PROFESSIONAL BACKGROUND.
- (b) EXPERIENCE WORKING WITH MEDIUM TO LARGE COMMERCIAL APPLICATIONS.
- (c) BEEN USED TO WORKING WITH MEDIUM TO LARGE COMPUTER HARDWARE OR HAVE EXPERIENCE IN THE DISTRIBUTED PROCESSING ENVIRONMENT.
- (d) THE ABILITY TO COMMUNICATE WELL WITH ALL TYPES OF USER PERSONNEL AND MANAGEMENT.

Greenock House 19 Cuckfield Road Hurstpierpoint Sussex  
Telephone 0273 833848

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**BRIGHTON — SUSSEX  
COMMENCING SALARY  
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**COMMENCING SALARY  
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EXPENSES**

IN LONDON OR THE SOUTH AS OUR CLIENTS WISH TO MAKE EARLY DECISIONS

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Computer Personnel Consultants

## PROGRAMMING MANAGEMENT

LONDON To £7,100 + relocation

Our client is a well-known manufacturing organisation with offices in London, convenient for commuting from North East and South East London, Essex or North Kent.

The installation houses an IBM 370/138 under DOS VS which supports a teleprocessing network using SHADOW. There are on-line, real-time and database systems in operation and further development utilising these techniques is planned.

We are now seeking an experienced DP professional who has the ability to manage, motivate and train the staff under their direction.

Suitable candidates will have a programming background together with some knowledge of IBM hardware; it is likely that they will have used one high and one low level language. The most important quality is the ability to manage, not technical training will be available as required.

In addition to a competitive salary the position carries an attractive benefits package. Generous relocation expenses are available where applicable.

24-hr. answering service  
Please telephone for a confidential discussion or write to:  
30 Fleet Street London EC4Y 1AA  
01-353 0981

## ACCOUNTANT MANAGEMENT SERVICES

Up to £4,750 + Car

An old-established finance company, based in Ashford-Under-Lyme company with 20 branches in the North and with considerable plans for expansion, requires a commercially minded Accountant, not necessarily qualified.

To head up a new Management Services Department. Only men with a proven practical experience of computer based systems need apply. The company currently operates an ICL 2903 minicomputer which is shortly to be replaced by a Univac UTS 400 minicomputer to meet configuration incorporating VDU's, floppy disc storage and line printer, linked to a Univac. The primary task will be to consolidate the systems development undertaken during the last three years and to enhance the management information systems to provide the financial control which will be required to support the company's development drive. Budgetary control is already in operation and a basic financial modelling system has been introduced.

The appointment offers good career prospects in a stimulating environment. A contributory pension scheme is in operation. Written applications giving brief personal and career details to the Financial Director, J. J. Orammond Limited, 3/5 Stamford Arcade, Ashford-Under-Lyme OLE 82.

Call or write: Colin Shingleton

## Meteor Computer Consultants Ltd.

Berry House, 20-22 Wurple Road, Wimbledon, London SW19 4DF  
Telephone 01-946 4424



## AMBITIOUS OPERATORS

c. £3800

ICCH, International Commodities Clearing House, provides a clearing and guaranteeing service to commodity markets in the U.K. and Overseas. They have a substantial investment in data processing, which currently consists of an IBM 370/138 and an IBM 370/148 utilising DOS/VS and supporting an extensive CICS teleprocessing network. Because of business expansion and internal promotions, they are seeking to recruit additional personnel for their current 3-shift system.

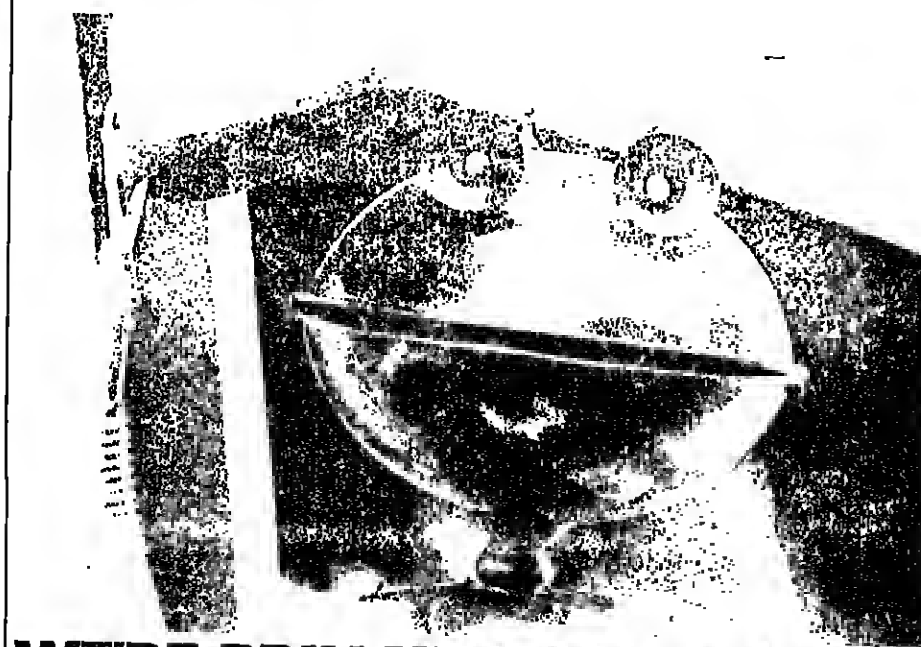
It is envisaged that the successful applicants will have at least 1 year's operating experience on an IBM mainframe, preferably in a DOS/VS environment. Knowledge of GRASP/POWER and CICS would be an added advantage. In-house and external training facilities are used extensively and career prospects are excellent.

Fringe benefits include staff loans, interest-free ticket loans, non-contributory pension scheme, life insurance, luncheon vouchers and sports and social club.

Ref. RJ 233

## D.P. RECRUITMENT LIMITED

Kent House, 87 Regent Street, London W1R 7HF  
Tel: 01-437 2062/3/4 (24-HOUR ANSWERPHONE)



## WE'RE BRINGING OUR LEADER TO YOU!

Informal interviews 3 p.m. - 8 p.m. (no appointment necessary)

**Manchester** Monday, 15th May, Grand Hotel, Aytoun Street.  
**Liverpool** Wednesday, 17th May, St. Georges Hotel, Lime Street.  
**Leeds** Monday, 22nd May, Dragonara Hotel, Neville Street.

A close encounter with Cadbury Schweppes could be just what your career needs right now. Our sensors have detected they have one of the most advanced (by earth standards) in-house computer facilities in what you earth people call the U.K.

Hardware includes 2 - IBM 370/158's + advanced TP equipment and many more quaint antiques.

The centre is located at Bournville a pleasant suburb of Birmingham.

The inhabitants are reported to be very friendly. Cultural, recreational and social activities registered high.

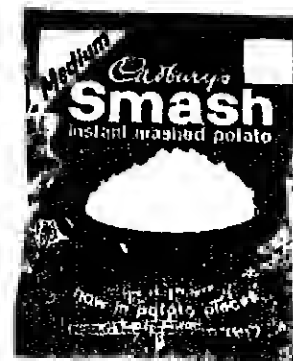
readings on our enjoyment recorders. Housing units are reasonable in cost too, and our surveys show much green countryside in close proximity.

They need experienced SYSTEMS ANALYSTS (2 years + IBM knowledge) to work on on-line and batch systems.

SALARIES ARE UP TO £6,825 PER ANNUM PLUS PROFIT LINKED BONUS.

Where you start depends on experience and qualifications.

At least 24 days holiday + public holidays. Sports and social facilities. Staff discounts.



Nail McConnaughy and his colleagues will be standing by to work out your problem. Show us your problem and we'll solve it for you.

Write to: Mrs. J. McConnaughy, 100, The Green, London SE1 4YB.

## OUTSTANDING OPPORTUNITY FOR IBM TRAINED SYSTEMS CONSULTANTS TO DEVELOP INTERNATIONAL CAREER & REPUTATION

Our Client is considered to be the World's leading supplier of IBM-compatible mainframes. They have achieved spectacular success in the US and Europe with their wide range of products and services and are currently expanding their operations throughout Europe; the Middle East and Africa.

To IBM-trained personnel currently engaged in program support, SE or systems programming functions, a senior appointment is available. BASED IN LONDON with responsibility for establishing pre- and post-sales support in the Middle East.

This position offers the suitable candidate the opportunity to develop his experience and reputation in the international market. A VERY ATTRACTIVE SALARY FOR THE RIGHT MAN, who should be interested in varied travel up to 80% of his time.

We require candidates with the following:

- \* Experience in MVS, VM/370, VS/1, OS and/or DOS/VS on large mainframes
- \* Ability to handle both pre- and post-sales support work and to communicate effectively with Clients in numerous countries (foreign language fluency is not mandatory but will be an advantage)

This is a rare opportunity for the right man and we will be short-listing at an early date.

Send confidential C.V. to the address below or Reverse charge telephone call to us (24 Hour answering service), quoting reference GWM-M.

DPSC Group Limited, International Management and Personnel Consultants, Crown House, Morden, Surrey SM4 6EU, England, Telephone 01-840 4311.



# ata Computer Recruitment

A Division of ATA Selection and Management Services, recruitment consultants to industry and Commerce since 1962

## CRISIS IN COMPUTER INDUSTRY

An acute shortage of qualified Analysts and Programmers throughout England and Scotland is causing great concern amongst Computer Managers.

As a result of investigation this concern seems justified. We have discovered that very high salaries, excellent career prospects and interesting project developments seem insufficient to arouse interest on the employment market.

Action decided on by ATA Computer Recruitment is for Analysts and Programmers to ring us and tell us what else they need to work for leading computer installations and manufacturers.

We have over 200 computer positions in Scotland, North-West, North-East, Midlands, South and South-West, and we need your help to fulfil this demand. Any indication of salaries at this stage is meaningless as our clients will quite simply pay what you are worth.

## WANTED 200 COMPUTER PEOPLE THROUGHOUT U.K.

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01-637 0781

CRAWLEY  
0293 514071

SOUTHAMPTON  
0703 37555

## ENGINEERS AND MATHEMATICIANS

Dynamic Simulation and Control

Babcock & Wilcox (Operations) Ltd. require Engineers and Mathematicians to work on engineering problems associated with boiler dynamics and control.

Using mathematical modelling techniques and hybrid and digital computers, the successful applicants will be responsible for the development of simulations for the prediction of plant performance and the subsequent transient analysis of the systems.

A degree or equivalent qualifications and experience in one of the following areas is required: Mathematics, Modelling, Analogue/Hybrid Computer Programming, Digital Computer Programming using a Simulation language, Mechanical/Control Engineering. The salary is negotiable.

Please apply giving full details of experience to: Mr. D. M. McLaren, Babcock & Wilcox (Operations) Ltd., 185, Great Dover Street, London SE1 4YB.



Babcock & Wilcox (Operations) Ltd.

## COMPUTER STAFF

Salary range - £3,200-£4,900

Our Client is a major industrial organisation. Vacancies now exist at Computer Operator and Senior levels for shift operating teams at a computer bureau located in South Yorkshire.

The work offered is varied and challenging, involving the use of several mainframes of differing manufacture. Considerable use is made of modern telecommunications network facilities.

Successful applicants will have experience of ICL 1900 using GEORGE 3 and/or IBM 370 VSI. For appointment at Senior level, experience of both is required, although alternative additional experience (e.g. of large scale bureau or telecommunications operations) may be acceptable.

Salaries, including shift allowances, range from £3,200 to £4,900; starting level will depend on experience and appointment.

Enquiries and applications should be sent to the address below. (Reference 780 must be quoted on your envelope. Enclose separately a note of any companies to which your application should not be sent.)

Ronald Fairbairn, Everetts Recruitment, 10 Greycoat Place, London SW1P 1SE

EVERETTS recruitment

## Computing in Education Administration

Middlesex Polytechnic is currently establishing a new team to develop aspects of a Polytechnic-wide computer-based management information system and corporate model. The initial emphasis is on resource management, covering students, staff, buildings and finance.

The Polytechnic has a DEC system 10 computer and all applications will be developed and operated on-line. Ultimately a central database will be created with which all the applications will interface.

Two vacancies exist at senior level for

**Senior Analyst/Programmers**  
S01/2; £5044 - £5797 p.a. inc.

Graduate status will normally be essential, together with substantial experience at a senior level in either computerised data processing or business systems analysis. Please write for full details and application form, enclosing first two references, to: Applications Officer, Dept. 84/125, Middlesex Polytechnic, Bowditch Street, London N11 2ND. Closing date: 22nd May

Middlesex Polytechnic

## MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

## SENIOR PROGRAMMER

for Problem Solving and Systems Design

CITY

c. £6,000

A fast growing technical support team is seeking a potential team leader capable of translating user requirements into a working system. Following extensive training the successful applicant will support the preparation and implementation of proposals using the company's financial application packages. Operating from their City offices he/she will be responsible for junior staff, capable of giving on-job training and supervision.

Ideally you will have at least three years' programming experience in a commercial environment. Machine and language are not as important as the ability to assimilate a problem and design and test a solution using on-line terminals.

The Company, a major U.S. Bureau, has been active in the U.K. for nearly six years and has recently commenced a planned expansion of their marketing operation. Internal reorganisation has created this new support function and the person appointed will be the potential deputy manager of this growing department.

24-hour answering service

Please telephone for a confidential discussion or write to:  
30 Fleet Street, London EC4Y 1AA  
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Infotech Operations Ltd., the industry standard in operator and operations management training, require an

## Operations Consultant

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Applicants must be experienced at a senior level in the field of computer operations and be capable of advising DP management on development and training programmes for all levels of operations staff.

This is a senior position within Infotech Operations Ltd. giving tremendous scope for future development with an established company which is growing rapidly in size and reputation.

Contact **John Blake Director Education and Training**  
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- Merchandise control through 800POS terminals
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Around £5,000

### PROGRAMMERS & SENIOR PROGRAMMERS

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### WHERE ARE WE?

### WE OFFER!

Contact person named on Reddish (0527) 27801 or write to: Hmalt Ltd., Jankin Street Drive, Washford West, Reddish, Worcs. B99 0DE

# HALFORDS

A BURMAH GROUP COMPANY

## MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

### SENIOR PROGRAMMER (Team Leader)

#### MIDDLESEX

Due to the imminent upgrade of their IBM mainframe and an intensive schedule of systems development during the coming year, our client is seeking an experienced Programmer with knowledge of either COBOL or RPG II.

The position offers the opportunity to gain experience in:

- \* Project Control
- \* Team Leading of 3-5 Programmers
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- \* Program Design and Specification
- \* DL/I

The Company, situated in HAYES, offers an excellent starting salary with a Company firmly committed to computer system development, RELOCATION ASSISTANCE, SUBSIDISED CATERING, and an ATTRACTIVE PENSION SCHEME are also in the package to be offered to the successful applicant.

24-hr. answering service  
Please telephone for a confidential discussion or write to:  
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01-353 0981

### LOUGHBOROUGH UNIVERSITY OF TECHNOLOGY

#### PROGRAMMER

A programmer is needed to work in the Department of Civil Engineering, developing programs for a wide variety of applications. These stem mainly from research activities within the department. A science-based training to degree level would be preferred together with some experience of FORTRAN.

Salary within scale £2,139 - £5,252. It is hoped that the initial appointment will be within the lower half of the scale. Further details and application form from Paul Johnson, Establishment Officer, Ref. 7912CV.

Loughborough Leicestershire

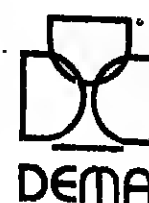
### UNIVERSITY OF GLASGOW Department of Computing Science

#### SYSTEMS PROGRAMMER

Applications are invited for the post of Systems Programmer in the Department of Computing Science. The Systems Programmer will be responsible for the day to day running of the Department's PDP-11, 400 series system, and will participate in the long term development of the computing facilities of the Department. The Systems Programmer will also be expected to carry out a range of other duties as may arise.

Applicants should normally possess a good knowledge of computing Science and preferably have had some relevant professional experience.

The appointment will be made on a full-time basis. The salary will be Research and Academic Staff £1,800 - £12,000, in accordance with the University's scale of salaries. Further particulars may be obtained from the Secretary of the University, University of Glasgow, Glasgow G12 8QQ, to whom applications (2 copies) giving the names and addresses of three referees, should be sent not later than 31st May, 1978. In reply please quote Ref No. 4139.



**DEMA GLASS LIMITED**  
(Incorporating Thomas Webb & Sons and Edinburgh Crystal Glass Company)

## SYSTEMS ANALYSTS

We now need to increase our staff to work on new systems.

Applicants will preferably possess a commercial background and must have sound experience of systems work from initial investigation to successful implementation.

Our present method of operation is batch, but we shall be upgrading in the near future and developing on-line facilities. Experience of on-line systems would be an advantage.

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### UNIVERSITY OF SOUTHAMPTON

Institute of Sound and Vibration Research

Applicants are needed for the post of

#### MANAGER

for the State Analytical Service in the Institute of Sound and Vibration Research.

Candidates should have experience in the operation of an analytical service for the analysis of a wide range of samples.

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Further particulars may be obtained from: Dr. A. S. Copland, The University, Southampton SO8 9NH, to whom applications should be sent not later than 30 May 1978. Please quote reference 255/A/CW.

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## PROGRAMMERS STOP

## LOOK NOW!

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2 years' plus experience

Start up to £5,750

PROGRAMMERS  
1 year plus experience

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### Why look any further?

Do you realise that some of the most attractive programming vacancies currently available are with a major U.K. group of companies, located in Uxbridge? These vacancies offer any able programmer with a minimum of 12 months' experience an unusually wide variety of work and a high level of technical interest.

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Our client uses a variety of hardware including IBM and ICL Mainframes, and a new 3031 is due for delivery this autumn. In addition you may work on mini and micro computers. Clearly the scope for you to gain hardware expertise is unlikely to be surpassed anywhere.

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Our client provides a DP service to a major Food and Leisure group. Because of the diverse nature of the group's activities the breadth of systems experience to be gained is exceptionally large. This includes:

- Data base applications. • Sales Order Processing.
- Accounting applications. • Retail systems.
- Stock Control. • Statistical & Financial Control System. • Managerial Information Systems.

In addition to conventional batch processing, interactive and distributed processing techniques are being used.

### Range of Languages

In addition to COBOL and PL/1 the company uses other computer languages. Programmers develop their programs using on-line facilities under VM/CMS. We would therefore like to hear from any career minded programmer, regardless of language or hardware experience to date, who wishes to progress in a stimulating and challenging environment.

Our client offers an EXTENSIVE TRAINING Programme designed to develop your potential to the full. This includes language and hardware training in addition to courses in modern programming techniques.

## Outstanding opportunities for YOU in UXBRIDGE

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The range of benefits offered by our client is truly outstanding. In addition to a high initial salary you are assured of regular assessments, paid overtime, generous pension and life assurance arrangements and free BUPA for yourself and your family. Relocation arrangements are very generous too, should you require to move.

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You can

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GO where the hardware is of the latest kind

GO where there is variety and interest

GO where there is good training

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ACT NOW!

If you require more details simply phone LEN CRAY on Leeds (0532) 444185 reversing the charges if necessary. We'll be glad to take any details over the phone.

Alternatively complete the coupon below and send it to Lorien Computer Services Limited, FREEPOST, LEEDS, LS7 3YY. We'll arrange to meet you in LONDON or the NORTH.

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Name: .....

Address: .....

Home Telephone: .....

Business Telephone: ..... Ext. ....

### PROGRAMMING

Experience to date: .....

Languages Used: .....

Hardware: .....

Operating Systems: .....

RefCW11

## LORIEN COMPUTER SERVICES

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The Senior Systems Analyst/Programmer will have Project Leader responsibilities and will have developed and implemented at least one on-line system preferably utilizing 2903/4 hardware. A strong COBOL programming background is essential and some experience of Team Leadership and user liaison would be beneficial.

For further details telephone Ian Baker on 061-832 5856 or alternatively write enclosing C.V. to ATA Computer Recruitment, Anglia House, 86 Cross Street, Manchester M2 4LA.

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c£4,500

The main duties of the Analyst/Programmer will be to assist the Senior Systems Analyst/Programmer in the design of the on-line systems and the subsequent coding in COBOL to comply with the proposed schedules and standards.

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to £4,500

The prime responsibility of the Chief Operator will be to organise and schedule the work load in order to optimise machine loading and lay down the standards for the Operations Section. Whilst 2903/4 experience is extremely desirable, applications from experienced 1900 series staff are invited.

The company provides an excellent relocation package which is made up of all legal fees including Estate Agents' fees, survey costs, full removal expenses, interim subsistence payments and disturbance allowance of 10% of annual salary.

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SOUTH EASTERN COMPUTER SERVICES is already established as one of Europe's leading firms of on-line communications consultants. We are currently seeking potential consultants for major on-line projects throughout the UNITED KINGDOM.

We don't mind whether you are freelance or an employee; if you can match our needs now, you could become involved in some of the most exciting projects available anywhere, AND YOU CAN EXPECT TO BE PAID HIGH RATES AND/OR SALARIES ACCORDINGLY.

### ANALYST/PROGRAMMERS

Minimum 4 years' commercial experience. Knowledge of CICS OL/1 or IMS would be an advantage, but not essential as training will be given.

### ANALYST PROGRAMMERS

Minimum 4 years' experience IBM 360/370 mainframe. Recent experience of the 3780 series an advantage.

### SENIOR PROGRAMMERS

Minimum 4 years' commercial experience. Knowledge of DOS/OS COBOL under MVS or VS1/VS2 an advantage.

### ANALYST/PROGRAMMERS

Minimum 6 years' experience of finance applications. COBOL essential DOS and/or OS.

### SENIOR PROGRAMMERS

Minimum 2 years' OEC experience. Knowledge of RSX11M operating system essential.

FOR FURTHER INFORMATION ABOUT THE COMPANY, RATES, SALARIES AND THE PROJECTS, CONTACT:

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SOUTH EASTERN HOUSE, 3/5 OLD BRIDGE STREET  
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TELEPHONE: 01-977 5321 (10 lines) TELEX: 8814810  
A Consultant will be available until 7.30 p.m. weekdays;  
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Reverse charges from outside London Area

## occ computer personnel limited

COMPUTER WEEKLY, May 11, 1978

MINI experience = MAXIMUM rewards

ANY mini hardware  
High or low-level languages  
Technical or commercial systems  
Real Time applications

Our client is a well-respected and highly professional consultancy organisation with a continuous and impressive growth record over a number of years. Their activities extend across the full range of the computer industry with clients throughout the UK and overseas. Demand for their services is higher than ever, particularly in the area of mini computer applications and they therefore require a number of programmers to supplement their existing expertise in this field. Applications now being developed include air freight, computer typesetting, process control and telecommunications as well as various more commercially oriented systems.

Ideally we are looking for candidates with a minimum of 2 years' programming experience on Real Time Mini Computer applications, although we are also happy to consider candidates with less experience in this area. Due to the variety of hardware and applications currently under development, any mini hardware and language experience will be considered whether high or low level, commercial or technical.

The majority of vacancies exist at offices based in Hampshire and London although some candidates, specifically in the area of process control, may be based in the North-West. It must be appreciated, however, that due to the nature of the consultancy business, mobility is required from all employees and although every effort is made to assign employees to projects within daily travelling distance, there may be occasions when this cannot be done; all expenses are, of course fully reimbursed.

Salaries to **£6,500**  
Variety of work  
Excellent career prospects  
Stable company environment

The Group recognises the need for job satisfaction and motivation and this is demonstrated by their exceedingly low staff turnover. Reviews are carried out every 6 months and a progressive career development policy is geared to reward the individual's own ability.

The company offers an excellent remuneration package which includes attractive salary, free BUPA and life assurance, contributory pension scheme, permanent sickness benefit and relocation assistance if appropriate. In addition, the Group offers excellent opportunities for transfer to overseas subsidiaries.

If you are interested in these positions, or wish to find out more about the opportunities, please call Sharon Matthews on 01-242 9356 (day) or Billericay (02774) 22351 (evenings) or complete and return the coupon. Ref: 452/CW/SM.

I am interested in the Mini Programmer positions

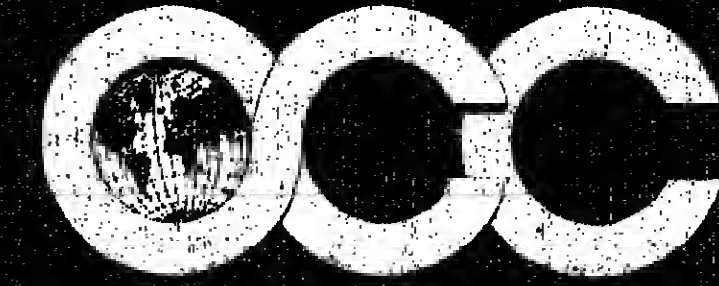
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Specialists since 1971  
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- \* MINIMUM 12 MONTHS' EXPERIENCE
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### ANALYST PROGRAMMER

**HOLLAND**  
Our client, an international engineering company, is seeking an analyst programmer with a minimum 3 years' COBOL experience. CICS VS would be an advantage. The company is situated in a historical University town close to the Dutch/German border.  
Co. offers:  
\* Relocation expenses  
\* Working in a new modern complex  
\* Excellent career prospects  
\* Salary around 40,000 guilders + BONUS  
Ref. 1473

### IBM ANALYST PROGRAMMERS

**SURREY**  
Opportunities in a local area rapidly expanding company seeks COBOL analyst programmers. This large concern with large IBM equipment in a commercial and financial environment co. can offer:  
\* EXCELLENT promotional prospects  
\* Variety of new development work  
\* FREE BUPA and FLEXITIME  
\* Salary to £5,000  
Ref. 1382

### SALESMEN / WOMEN

**HOLLAND**  
World-wide manufacturing company based in Amsterdam seeks salesmen/women to be involved in marketing their hardware, software and ancillary equipment. Co. offers:  
\* Tremendous career opportunities  
\* World-wide first-class travelling  
\* Relocation expenses for married and single persons  
\* Salary 42,000 guilders (£10,000) + commission + expenses  
Ref. 1339

### SYSTEMS ANALYST

**LONDON**  
World-wide company which provides services to oil and construction industry has an immediate vacancy for systems analyst. Candidates should have at least 2 years in the design and implementation of large commercial systems. IBM programming background would be an advantage. World-wide user contact. Co. offers:  
\* Excellent career prospects  
\* Generous fringe benefits including L.V.'s  
\* Pension scheme/S.T.L.S.  
\* Salary to £7,000  
Ref. 1488

### PROGRAMMERS

**MIDOX**  
One of the most significant forces in the computer services industry in the U.K., our client provides a comprehensive range of services to clients world-wide. Retaining IBM 370 158 under OS, co. seeks programmers with min. 18 months' COBOL and/or PL/I. They offer:  
\* Move within programming, into systems analysis or sales support or join one of their specialist groups  
\* Chance to move onto MINIS  
\* Excellent promotion prospects  
\* Salary £5,500  
Ref. 1481

### JUNIOR PROGS

**CITY/SE**  
A challenging career awaits you if you have 12 months' experience on any IBM high level language to join highly successful team within leading national organisation with IBM 370 hardware. Co. offers:  
\* New project commencing May/June  
\* Room for career growth  
\* Training in PL/I  
\* Learn Database and Teleprocessing  
\* Salary £4,500  
Ref. 1150

### ICL PROGS

**CITY**  
Our client is a city-based financial institution retaining ICL 1900 hardware with a 2880 planned for 1979. They require persons with min. 12 months' ICL COBOL exp. and can offer:  
\* Exciting and interesting on-going and future development work  
\* Excellent training/promotion prospects  
\* 3% house-purchase scheme  
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\* Salary £5,000 neg.  
Ref. 1477

### PL/I PROG

**LONDON**  
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\* Variety of well-planned projects  
\* Promotion prospects with a company who know where they're going!  
\* Training in CICS  
\* Staff restaurant  
\* Salary to £7,000 p.a.  
Ref. 1478

### ANALYST/PROG

**EAST END**  
Electronics manufacturing co. working on a global scale seeks clear, logical thinking analyst programmer for their ICL 1900/2900 series equipment.  
\* Control of small development or support projects  
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\* Full scale of projects ranging from purchasing to financial modelling  
\* Subsidised restaurant/drinking club  
\* Salary £5,500.  
Ref. 1153

### PROGRAMMER

**BERGEM**  
Our client is a major organisation, providing comprehensive marine engineering and construction services to companies engaged in hydrocarbon development. Retaining IBM 370 under OOS/VS they seek person with 4 years' COBOL exp. with PL/I, RPG or ASSEMBLER an asset. Co. offers:  
\* Variety of projects pertaining to administration within a rapidly expanding co.  
\* Centrally based—BRUSSELS  
\* English-speaking environment  
\* Settling-in allowance for married or single persons  
\* Salary approx. £18,000 p.a. — total package  
Ref. 1474

### MINI PROGS

**CITY**  
Prestige company based in America, Europe and U.K. are recruiting persons at varying levels (from programmers to systems specialists) for their new City offices. Having large DEC PDP equipment, they seek people with exp on any MINI but using ASSEMBLER. They offer:  
\* Extensive training in up-to-date technology  
\* Excellent career opportunities  
\* Training in RSK, RTIL and RSTS  
\* Chance to travel abroad  
\* Salary £5,000-£10,000 p.a.  
Ref. 1478

### JUNIOR PROG

**HOLLAND**  
Very rare opportunity for ambitious person wanting to work overseas. If you have initiative, good education and approx. 8 months' COBOL, PL/I or experience of other language then ring NOW!  
Co. offers:  
\* Excellent training within world-wide organisation using modern technology  
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\* English-speaking country  
\* Salary 36,000 guilders (£8,750 p.a.)  
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**LONDON**  
Multi-national company with IBM 370 equipment requires persons with minimum 18 months' ASSEMBLER experience to join highly professional team currently developing a major sophisticated on-line systems. Co. offers:  
\* Highly progressive organisation  
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\* Responsibility for analysis  
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\* Job security with prestige concern  
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\* Salary £7,500  
Ref. 1428

### PL/I PROG

**HOLLAND**  
Our client, a major and successful concern, wishes to strengthen its European programming team. Retaining IBM 370 hardware under DOS/VS, the co. seeks ambitious person with PL/I, CICS, or FORTRAN background. Co. offers:  
\* Involvement in development of new and existing projects  
\* Opportunity to work with an expanding and internationally recognised team  
\* Centrally based—Amsterdam  
\* Salary 40,000 guilders (£10,000) + cost of living allowance and relocation expenses  
Ref. 1428

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- \* Maximisation of system performance.
- \* Documentation of the overall system.
- \* Continuation software engineering.

### THE QUALITIES WE SEEK INCLUDE:

- \* A minimum of three years' relevant experience in a commercial software product environment, either in a development situation or as a user.
- \* Practical experience in COBOL and/or RPGII with some knowledge of Assembler.
- \* Good communication skills.
- \* A knowledge of database and transaction processing techniques would be an asset.

If you are interested and would like more information call Bernard Evans, or write to him at the address below, giving your career details.

PERKIN-ELMER DATA SYSTEMS, 227 BATH ROAD, SLOUGH, BERKS, SL1 4AX. TEL. SLOUGH 345111.

## MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

### JUNIOR SYSTEMS CONSULTANT

**CITY To £5000**

We are seeking GRADUATES with at least a YEAR's commercial experience to join this expanding Bureau as Junior Systems Consultants. During your initial eighteen months you will undergo extensive training internally and externally in both business analysis and the company's financial products.

The Company, a major U.S. Bureau, market a range of financial packages, together with an advanced programming language. The products are supplemented by a communication network linking 80 mainframes in the States to both Europe and Japan.

The Company offers an excellent starting salary together with extensive training and the opportunity to move into business consultancy.

### 2-4 years' COBOL

**Near CROYDON Programmer/Analysts £4500-£6000**

These positions present an ideal opportunity for Programmers keen to accelerate their careers in analysis on a wide range of new development applications using database and on-line techniques.

Successful candidates will join a project oriented environment and can progress rapidly to hold responsibility for the development of systems from inception to implementation.

Applicants should have a minimum of two years' COBOL programming experience gained on any machine. Keen to progress to analysis they should have a flexible approach to d.p. and be capable of managing small to medium size projects involving close user contact.

In addition to excellent commencing salaries these positions offer an attractive large company benefits.

### (COMPUTER ENGINEERING)

**SALARY c £6,000 P.A.**

A leading Computer Manufacturer based in Hertfordshire is wishing to appoint the above position in order to cater for the training of engineering personnel under a Government scheme.

It is expected that suitable applicants should be:

- \* versed in modern computer technology
- \* able to demonstrate good communicative skills
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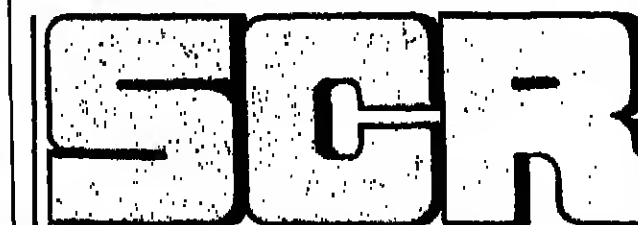
The position would be suitable for either a qualified Instructor or a competent Hardware Engineer with the desire and ability to progress in this direction.

Candidates should in the first instance contact:

ANDY CARTER (in strict confidence) ON: 021-236 3781  
EVENINGS & WEEKENDS ON: Laspworth 3272

REF. NO. CW/6/2

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Computing Services Association

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### UNITED KINGDOM

IBM COSOL IBM  
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OFFICES: AMSTERDAM, PARIS, MANCHESTER





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Senior Programmers	to £6,000
Programmers	to £5,000

Hoskyns Banking Division has operated successfully in the Banking Sector for many years. Our assignments range from strategic studies of computer requirements through to the production of programs and systems to meet particular requirements of individual banks. Our services include the provision of an International Banking package which has been supplied to many major banks. As part of our planned expansion we have vacancies for:

- \* **Banking Specialists** at all levels with real experience of banking systems
- \* **Minicomputer Specialists** to join a team working on the development of application and other software for an international distributed processing system based on PDP/11 computers. Knowledge of DEC computers, RTL/2 or similar high level languages will be an advantage.
- \* **Programmers and Senior Programmers** with experience of RPG programming.

Contact David Menzies on 01-251 4581 or write to Banking Division  
John Hoskyns & Company Limited  
145/157 St. John's Street, London EC1V 4QJ

Hoskyns Turnkey Division specialises in the provision of a complete systems and hardware service. Due to continuing and rapid expansion of our work in this area we require additional staff. If you have practical experience of implementation of commercial systems on PDP/11, HP3000 or similar equipment we can offer you an outstanding career opportunity. Our immediate need is for:

- \* **Consultants** to evaluate requirements and advise clients on computer strategy, to manage projects from inception to implementation, or to market our Application Systems.
- \* **Technical Consultants** to work in project teams on design of advanced systems
- \* **Senior Programmers** with at least one year's supervisory experience and an in-depth programming background
- \* **Programmers** with at least one year's experience of BASIC, COBOL, DIBOL or MUMPS

Contact Andy Mensfield or Tony Winslade on 01-242 1951  
or write to Turnkey Division  
John Hoskyns & Company Limited  
91/93 Farringdon Road, London EC1M 3LB

# consultants

## Bournemouth £6000-£7500

Hoskyns Education, a division of the Hoskyns Group, has doubled its revenue in the last two years. To support this growth we need more consultants at our Bournemouth based Education Centre.

On joining us you will be provided with training in our methodology and course management methods. After this you will be involved in running our standard courses. You will organise discussion groups, manage business games, lead project work and above all help people turn knowledge into practical skills. Within a year you could find yourself on brief assignments in Holland, Switzerland, Kuwait, Hong Kong and the USA... to name but five countries in which we have given courses recently.

In Bournemouth you will also take project responsibility for course development and client liaison and will have the opportunity of doing short consultancy assignments when not running courses.

The people we are looking for will have had around four years' experience in the analysis, design and implementation of commercial computer systems including one or two years of managing people.

Naturally we pay removal expenses and senior staff also receive company cars.

If you want to work in a growth orientated organisation which produces the best education courses available please send full career and salary details, including your telephone number to:

N. J. Blakeney-Edwards, Director - Education Division,  
John Hoskyns & Company Limited,  
91-93 Farringdon Road, London EC1M 3LB.  
Telephone: 01-242 1951

# hoskyns

A systems company with over 500 professional staff  
13 computer centres and 14 years of continuous growth

## COMPUTER CAREER OPPORTUNITIES BATH

The Bath and Portland Group Ltd. provide a computing service to its subsidiary companies operating in the Building and Civil Engineering, Minerals, Engineering, and Agricultural Industries. Due to planned expansion we are seeking persons to complement the existing small team to assist with the design and implementation of both new work and the enhancement of existing systems. It is envisaged that companies will be linked to the ICL 1901 T mainframe using 7602 terminal equipment in the near future leading to 2950 conversion later.

### COBOL PROGRAMMERS

We have vacancies for persons with at least 12 months' COBOL programming experience, preferably with ICL background, these vacancies would be ideal for the younger programmer seeking an environment to expand his or her abilities.

For the more senior programmer we offer the possibility of ICL training in system design and eventually systems analysis.

Starting salaries will be paid according to age and experience.

### COMPUTER-OPERATOR

An excellent opportunity exists for a person with ICL 1900 experience to join our operations team. It is anticipated that in the near future the present 1901 T card and paper tape installation using EOS 80 and MT will be connected to RGE and on-line facilities with 7602 and 2950 later.

Two shift working is currently in force between 8.00 a.m. and 8.00 p.m. Monday to Friday.

Salary includes a shift allowance and is commensurate with age and experience.

Please write in strictest confidence enclosing brief career details and salary guide, to:

Computer Services Manager  
The Bath & Portland Group Ltd.  
20 Manvers Street  
BATH



## SYSTEMS DEVELOPMENT ENGINEER

London up to £5671

The Systems Development Engineer is a member of the Systems section, which is responsible for analysing the computing needs of Control Control and ensuring that they are met.

A mini-computer to drive improved displays at the London control centre will be installed in 1979; replacements for the monitoring and control computers and for the scientific computer are now being planned. The section also provides day-to-day support to all computer users in the department. The job holder has special responsibility for training users and preparing documentation for them.

You will be based in London, but some travel to the Midlands centre will be necessary.

Salary range £4873-£5671. This is inclusive of London Weighting and phases I and II pay policy supplements.

Please write with full details of age, experience, qualifications and current salary, quoting reference PS/618201(713), to the Senior Personnel Officer (Hickley), British Gas, 59 Brynston Street, London W1A 2AZ. Closing date for applications May 26, 1978.

BRITISH GAS



SCHOOL OF ELECTRONIC AND  
ELECTRICAL ENGINEERING

## RESEARCH ASSISTANT

A Research Assistant is required to join an SRC supported Research Project concerned with the application of digital stochastic computing techniques in on-line control and simulation. Applicants should be honours graduates in Mathematics and Statistics or Computer Science or Electrical Engineering. Three year fixed term contract.

Salary range £3888, £4018, £4161 per annum.  
Application forms from: Chief Administrative Officer,  
Robert Gordon's Institute of Technology, Schoolhill, Aberdeen AB9 1FL.

## Leeds Polytechnic School of Mathematics and Computing LECTURER II

Applications are invited for several posts at Lecturer II level. Applicants should be qualified, preferably with practical experience, in one or more of the following areas: Operational Research, Statistics, Computing and should be willing to contribute to the School's teaching research and consultancy.

Salary Scale (under review) £3744-£5895 - includes supplements.

Details from  
The Services Officer [C.24]  
Leeds Polytechnic  
Calverley Street  
Leeds LS1 3AE  
0632 482323

Please enclose a.c.e.

Closing date 17 May 1978.

## PROGRAMMERS

for your

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VIP

CONSULTANTS

INTERNATIONAL

01-481 3288/4838088/

499 2818

FOR OUT OF THIS

WORLD JOBS!

## PROGRAMMER £4,000-£5,000 High Wycombe, Bucks.

This is an opportunity to join a small O.P. systems development team currently implementing a comprehensive in-house system based on an IBM 360/40. The work is consequently very varied, covering not only programming but also systems analysis on Production and Inventory Control, Order Entry, Accounting, etc. making extensive use of a T.P. System. Past experience in some of the following fields would be an advantage:

- Cobol
- TP System
- DOS
- Assembler

Situated within easy reach of London, Inatron is one of the most successful and advanced manufacturers of materials testing equipment in the world. Our products are widely used in research, development and quality control and have an international reputation for quality. We can offer all the advantages of working for an international organisation, and excellent fringe benefits including a non-contributory pension/life assurance scheme.

Please phone High Wycombe (0494) 33333 or write for an application form to the Personnel Manager, Inatron Limited, Coronation Road, High Wycombe, Bucks HP12 3BY.

INSTRON

## KENT COUNTY COUNCIL

### SUPPLIES DEPARTMENT Systems Analyst/ Programmer

to join a dynamic team of 5 people to complete the development and implementation of an on-line computer system.

Salary £4759-£5085 inclusive according to experience.

The Computer Unit operates twin 1904S computers and is currently considering upgrading to a new range computer. The Supplies Department is the largest single user of the computer. Both are situated at West Malling, near Maidstone, Kent.

In addition to competitive salaries we offer a contributory pension scheme and assistance with relocation expenses; temporary housing may be available. Training will be given where appropriate and encouragement to develop full potential.

Further details and application form returnable by May 26, from West Malling (0732) 845845 Ext. 2385, or write The County Supplies Office, Kent County Supplies Centre, West Malling Airfield, Kent ME16 6QG.

## MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

## SALES EXECUTIVE

S. LONDON/KENT/  
SUSSEX

Mailing Systems

1st year c £8500 + CAR  
Guarantee

This vacancy presents an excellent opportunity for an experienced Bureau Sales Executive, or perhaps a sales oriented Analyst experienced in Mailing Systems, to join one of the foremost service organisations in the country.

The person appointed will take over an established territory with an active client base and a good prospect list. The Company provide first-class support to their sales force who have the advantage of marketing extremely advanced and powerful products to all sectors of commerce and industry.

Whilst the primary product will be a sophisticated and versatile mailing system the sales person will also be able to offer clients a complete range of services from machine time to specialist systems and programming services.

The Company offers good conditions of employment and a rewarding career path leading to main line management.

24-hr. answering service  
Please telephone for a confidential  
discussion or write to:  
30 Fleet Street London EC4Y 1AA  
01-353 0981

Manchester

## System Designers

£4779 to £7760

- \* Minimum 3 years working with real time software
- \* Substantial design experience
- \* Degree level qualifications

## Project Programmers

£3723 to £5680

- \* Minimum 2 years programming experience
- \* Some design experience
- \* Degree or HNC

Ferranti are European leaders in industrial process control and digital data communications with more than 1000 systems based on the ARGUS range of computers already in use. These openings result from recent large orders and plans for expansion. We are seeking staff who are capable of working on large and complex systems with a minimum of supervision and who are looking for technical challenge and advancement. Our offices and laboratories are in a pleasant part of South Manchester close to good residential areas. Generous relocation allowances are available for staff from outside the area.

Apply to Mr. W. L. Robinson, Ferranti Limited, Simonway, Wythenshawe, Manchester M22 5LA quoting reference 78WD22/CW, or telephone 061-428 3844 ext. 253 (reverse charge) for further information.

## Other opportunities Informal interviews

We also have vacancies for experienced sales engineers, project engineers, test engineers, maintenance engineers, draughtsmen and technical authors. If you would like an informal discussion on career prospects, senior members of our staff will be happy to meet you at the following times and places.

BOLTON: Pack Horse Hotel, Nelson Square, Tuesday, 23rd May, 4.30 p.m. to 8.00 p.m.  
ALDERLEY EDGE: The Edge Hotel, Alderley Edge, Wednesday, 24th May, 4.30 p.m. to 8.00 p.m.  
MANCHESTER: The Portland Hotel, Portland Street, Thursday, 25th May, 4.30 p.m. to 8.00 p.m.

These appointments are open to male and female applicants

FERRANTI  
Wythenshawe Division

## U.S.A.

UNIVAC 1108/1110  
SYSTEMS PROGRAMMERS  
APPLICATIONS PROGRAMMERS, ANALYSTS  
NON UNIVAC COBOL DATABASE ALSO CONSIDERED  
EXPENSE PAID INTERVIEWS, MAY 17th/19th

Spend 1/2 year with SYSTEM DEVELOPMENT CORPORATION (SDC), one of the most prestigious U.S. computer services organisations. SDC has successfully implemented many sophisticated, large scale, on-line systems.

We are located in a charming, rural university environment in one of the most beautiful and scenic areas of America.

- \* Excellent salaries including generous company paid benefits.
- \* Relocation expenses paid including return air fare
- \* Valuable on the job experience and training with an opportunity to visit and see the U.S.

TO ARRANGE INTERVIEW, write immediately (including phone number) to our U.K. representative, L. Levine, Royal Lancaster Hotel, Lancaster Terrace, London W2 2TY. Note: Mr. Levine will accept phone calls commencing May 11th at 01-292 6737. Reverse charges accepted.





## Data Processing Recruitment Consultants

### Database + Tele-Processing Paris

Salary: C.£16K Negotiable

One of the World's foremost Software and Hardware specialist groups with centres throughout Europe, North America and Asia has asked Logistix to identify top calibre Database & Tele-processing Programmers up to Team Leader level for both permanent and contract positions in France. Suitable applicants must have current hands-on applications or systems programming experience using COBOL, PL/I or BAL. It is anticipated that candidates will have worked with MIS applications for 2 years or longer, preferably with either IBM

or Honeywell compatible Database Systems. Applications cover on-line enquiry systems, sales ordering, stock/inventory control, budgeting and forecasting etc. The scope of projects and the prestige of working with this acclaimed Market Leader will be certain to appeal to the most demanding career minded individuals. Interviews will be held at our Client's London offices as soon as possible with a view to making offers of employment within 10 days of interview.

(Ref. 124)

### Programmers-Analysts-Consultants Holland

Salary: £9.5 -- 15K + Exceptional Benefits

Our clients, pioneers in frontier communications developments have contributed significantly to the accelerated advancement in Mini Computer technology and are internationally recognised as market leaders in their field. In pursuit of maintaining their forefront leadership our clients seek to identify key personnel to join them in their next development phase. Real-time specialists with strong Mini Computer backgrounds will make a vital contribution to the attainment of these goals within an environment offering the highest standards of professionalism, job satisfaction and development potential. Successful candidates will ideally demonstrate concentrated expertise with a narrow band-width of specialisation rather than general experience across a broad spectrum. Furthermore they will either be graduates (Computer Science or related

discipline) or will offer exceptional relevant experience in lieu. Consultants, Team Leaders and Senior Analysts are likely to be currently engaged in Data Communications or Real-Time mini software development within either a systems and software group or end-user environment implementing sophisticated applications software. Analyst/Programmers and Programmers will certainly offer extensive Assembly expertise within these areas of specialisation. In addition to above-market salaries our clients will pay full removal expenses for you and your family and provide, where necessary, a resettlement advance. The costs associated with temporary accommodation will be met by the company pending location of permanent housing. Numerous other exceptional benefits are offered providing a total package of considerable attraction.

(Ref. 125)

### Scientific Fortran Programmers Germany

Salary: £18K + Package

THE CLIENT: A multi-national European Research & Development Agency is further expanding its team strength in the areas of Scientific project implementation and require several Permanent Fortran Programmers with either Mini or Mainframe hands-on experience (not ivory tower). THE APPLICATIONS: A wide variety of projects are currently being developed and planned requiring specialist skills in one or more of the following areas: Numerical Analysis, Image Processing, Operational Research, Mathematical Modelling etc.

The scope and involvement of these applications are likely to be both challenging and interesting and are certain to push the horizon of technical sophistication to the limit. THE PACKAGE: In addition to a very realistic salary the Company also provides generous relocation expenses, medical insurance and pension schemes as well as initial paid accommodation expenses for you and your family. Interviews will be held in London during May and offers will be made within days.

(Ref. 126)

### RPG II Programmers Thames Valley + C. London

Salary: £7K + O'Seas Travel

An International and highly reputed Database/Tele-processing Systems Group has a number of new openings at three convenient locations in the South-East for RPGII programmers with three years or more experience of Commercial or Business System applications. Ideally candidates will have gained their programming experience on IBM System 3 or 32 and will have some basic software knowledge. Applications

include development of T.P. and Database packages compatible with IBM Mini hardware. This is certainly a state-of-the-art opportunity and will appeal to challenge seekers with career development ambition. The high salary reflects the importance which our clients place on the acquisition of these personnel whose future are assured in this excellent professional environment.

(Ref. 127)

### New Range Database+T.P. Scandinavia or London

Salary: c.£16K (Scandinavia) c.£8K (UK)

An important client of International Republic with offices in the Thames Valley, Central London and Scandinavia urgently require the following permanent or long contract personnel: Consultants, Analysts, Analyst Programmers and Programmers to work on a wide and interesting variety of commercial projects involving Database and Tele-processing expertise. Successful candidates will have current exposure to large ICL New Range hardware and will be able to demonstrate expertise in one or more of the following areas:

A minimum of 18 months solid New-Range experience is a prerequisite. The Scandinavian based positions are for 1 year (renewable). In addition to extremely competitive salaries full relocation expenses for candidates and their families are provided as is a resettlement allowance. European positions attract 12 months salary per annum and a minimum of 4 weeks leave with paid return fares to the UK. This New-Range installation is the first to be installed in Scandinavia and carries significant prestige. Interviews will be held in London as soon as applications are received.

(Ref. 128)

Logistix, Freepost 32, London W1E 3YZ  
01-4914636 Telex 28800

(Reverse charges)



Avon House, 366 Oxford Street, London W1M 9HA

### Senior Production Controller

Croydon

To £5,000

New position — New hardware —  
Expanding environment

This new position has been created as part of a major expansion plan by our client's DP department. Already a major user of DP they are committed to further significant investment. As a first stage a Data 100 terminal is being installed as a front end processor to a 370/158.

The successful applicant will run a small team — initially consisting of a production controller and terminal operator. It will be necessary to liaise with user management and staff as well as the systems and programming groups.

Candidates should have outstanding OS JCL knowledge and a business appreciation. They should have a mature and responsible attitude as this is a critical position within DP.

This is an opportunity for someone to develop with the department's expansion and build a significant career. Our client is part of a major financial group and so as well as a competitive salary, major company benefits apply.

This is an urgent requirement so telephone our CROYDON office NOW or write quoting ref: CW16-8H.

01-686 9683 (24 HOUR ANSWERING) 061 236 2419 (Lancaster) 01-686 9683 (Lancaster)

CAPP ASSOCIATES  
LONDON AND MANCHESTER

### Production Controller Computing Branch

LONDON SE1

The Production Section of the Computing Branch operates a PDP-11 computer with LBS 60's and magnetic tapes, using GLOUCESTER, a private sector computer consulting service. Both processing includes a variety of work, analysis of requirements and critical path planning. An on-line service is provided for data entry and program development. A 7905 communications processor is used for remote access to VHS and the 1903T to an IBM mainframe on medium size. Data preparation is carried out by a teletype system.

The Production Controller will have responsibility for the efficient running of this Section, including planning for, and the installation of new equipment, maintenance of system software, the data communications network and software and the implementation of new systems in co-operation with the Development Controller. Several years experience in the field of computing is required with the ability to manage staff and promote good labour relations.

Salary within a scale ranging from £7600 to £9771 per annum.

Applications quoting Vacancy Number 1156/78/CW giving full details should be forwarded to the Personnel Officer (Recruitment), to arrive by 1 June 1978.

Central Electricity Generating Board  
South Eastern Region  
Bankside House, Summer Street,  
London SE1.

### UNIVERSITY OF SOUTHAMPTON Faculty of Mathematical Studies Computer Studies Group Senior Experimental Officer

Applications are invited for this post in the Computer Studies Group, to be responsible for the running of the Computer Studies Teaching Laboratory. The Laboratory is currently equipped with PDP-11/34, 11/40 and 11/45 Computers, and 11/40 and 11/45 Computers. In addition to supervising the day-to-day activities of the Laboratory the person appointed will be responsible for the maintenance and documentation of the system software, and will take a large part in the development of new software. Experience of microcomputers and their software is essential, and a degree in Computer Science or equivalent (or equivalent) is desirable. Successful candidates will be offered a salary within range £3000-£4175, and will be offered a large part in the development of new software. Applications to: Dr. P. Roberts, University, Southampton SO9 5NH.

### UNIVERSITY OF LEICESTER COMPUTER LABORATORY SYSTEMS PROGRAMMER

Applications are invited for the post of Programmer within the Systems Programming Section of the Computer Laboratory. The work will include: Implementation of the University of Leicester's Mainframe (MVS) system; Development of system software on the mainframe computer; The Laboratory has a CDC Cyber 72 operating under NOS and RPL11 microcomputers providing front-end and network facilities. Applicants should possess a good degree in computer science or equivalent, or a postgraduate qualification in computer science. Knowledge of data communications or peripheral interfacing would be an advantage. Salary will be within the range £3000-£4175 p.a. on the University's scale according to qualifications and experience. Further particulars and terms of application may be obtained from the Director, Computer Laboratory, The University, Leicester LE1 7RH.

### CONTRACT PROGRAMMER COBOL/DOE/PL1 SOUTH ENGLAND TOP RATES

X-Cell Computer Services  
47 Essex Street, WC2E  
01-833 8501

### CONTRACT PROGRAMMER RPG-II, N. LONDON TOP RATES

X-Cell Computer Services  
47 Essex Street, WC2E  
01-833 8501

## ata Computer Recruitment

### COMPUTER SALES! SYSTEMS SUPPORT! ANALYSTS!

c £14,000 + company car

Our clients, one of the fastest growing computer companies operating in this country, are keen to recruit sales executives for the MIDLANDS, SOUTH WALES and EAST ANGLIAN areas. Vacancies are also available in the SOUTH. Having been in this country for thirteen years, they are still achieving growth at the rate of 30% per annum in conjunction with the other divisions of the company who also operate in high technology fields. Applications for these posts are invited from:

- Experienced mini-computer or bureau sales executives aged 24/40.
- Experienced computer personnel with analysis, systems support, projects or similar background, who wish to enter the sales world. Aged 24/32.
- Experienced sales people from a different sales environment who wish to enter the computer sales world at trainee level.

Remuneration will be an excellent basic salary + negotiable guarantee + commission = £13,000 on target income. Fringe benefits include a Cavalier GL car + all expenses + an excellent pension scheme + 1st class sales incentives. For full details and immediate confidential interview telephone your nearest ATA office or write enclosing a curriculum vitae to:

ATA COMPUTER RECRUITMENT  
8th Floor, Woolworth Building  
102 New Street, Birmingham  
Southampton office now operational at 23 Cumberland Place,  
Southampton, SO1 2BS. Telephone: 0703 37555.

LONDON (01) 637 0781 MANCHESTER (061) 832 5856  
BIRMINGHAM (021) 643 1994 BRISTOL (0272) 211035  
EDINBURGH (031) 226 5381 CRAWLEY (0293) 514071



## Take the E.D.P. lead in Australia

The Commercial Bank of Australia Ltd offers career opportunities to top computer personnel who seek better financial and career opportunities abroad.

A totally new system is being developed at CBA Headquarters in Melbourne incorporating on-line services with distributed processing and decentralised data bases. The new system will use structured design techniques to produce integrated modular accounting, financial and management information systems.

The CBA is a major Australian bank with over 900 offices in Australia, New Zealand and overseas.

Attractive salaries are offered and fringe benefits include home purchase assistance, relocation costs and subsidised pension and medical scheme.

Initial interviews will be held in London during the week of 15th May, with final interviews conducted by senior Australian consultants, also in London, in the same week.

### Quality Assurance Specialist up to A\$22,000

Functions cover the attainment of approved standards in systems development and computer operations, with the provision of the highest standards of integrity and security of computerised activities. Applicants should have 3 years experience of communications hardware and software, and a good technical ability and knowledge in systems analysis, programming, operations, data base management, information security, accounting/auditing. Further, a sound capability in quality assurance and an awareness of the potential demands on the system from a developing user is required. A degree or equivalent is preferable.

### DBMS Manager up to A\$24,500

Responsibilities are for the design, implementation and maintenance of the on-line data bases, access techniques and the initial physical structure of the data

base. We require at least 10 years EDP experience including large data base design and management, with DBMS software and architecture, data dictionary/directory and systems performance measurement involvement. Thorough knowledge of available software and on-line processing systems and developments is expected.

### Data Administration Manager up to A\$22,000

Specific duties will include defining the content and logical structure of the data base and as a consequence, establish the data dictionary, define entry standards, data protection and facilitate systems integration. Background must include business analysis, systems design and programming, with dictionary assembly and data structure design. This experience should also include one major management information system. A degree in Economics, Mathematics, a technical or computer science is preferred.

Please apply as soon as possible enclosing full career and personal details and salary history to Mr. A. G. Boyd, c/o The Chief London Manager, The Commercial Bank of Australia Ltd, 12 Old Jewry, London EC2.  
All applications will be treated in the strictest confidence.

### UNIVERSITY OF ASTON IN BIRMINGHAM Department of Applied Psychology — Neuropsychology BIOMEDICAL ENGINEER

The Neuropsychology unit requires an engineer with good knowledge of computer electronics to operate the POP-8E computer system. Candidates should have experience of microcomputers and in problem solving although an appropriately qualified graduate will be considered. The successful candidate will join a team working in Electroencephalography and evoked responses, in clinical diagnostic work as well as in fundamental research. Opportunities for gaining a knowledge of neuropsychology and working for a higher degree facilities available on a POP-15 and the University ICL 1905.

Salary within the Other Related 18 Scale — £3188-£5262 p.a. Informal enquiries to Dr. O. F. A. Harding, Head of Unit, Tel. 021-355 3611 ext. 82551.

Further particulars and application forms may be obtained from the Staff Officer, University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET.

The appointment will be for a temporary period of 12 months in the first instance, with a possibility of a further extension. Please quote reference number 07010/CW.

### THE UNIVERSITY OF LANCASTER RESEARCH ASSISTANT DEPARTMENT OF COMPUTER STUDIES

Applications are invited for the post of RESEARCH ASSISTANT in the Department of Computer Studies. Most duties will be to assist in developing and documenting software for the Department's IBM and ECLIPSE microcomputers. Experience of an assembly language would be advantageous.

The appointment will be for a period of one year at the lower end of range B (£13,000-£15,000).

Further particulars may be obtained quoting reference 1427/78 from the Staff Officer, University of Lancaster, Bailrigg, Lancaster LA1 4YW, to whom enquiries (if copied) naming three referees should be sent not later than 5 June 1978.

## SALES — JOB CHECKLIST

When considering a job change you must be satisfied by the answers to these questions.

- |                         |  |
|-------------------------|--|
| <b>MUST I MOVE?</b>     | No, if you live in Southern England. Else company offers excellent relocation.                 |
| <b>GOOD COMPANY?</b>    | Yes, excellent. Large Computer manufacturer. Fast growth.                                      |
| <b>HOW MUCH?</b>        | Excellent Base Salaries + guarantees. Realistic earnings to £15,000 or more.                   |
| <b>WHAT MARKET?</b>     | Selling into large own-user base. Hundreds of well qualified prospects and customers.          |
| <b>SECURITY/CAREER?</b> | Excellent long term future. Career Development Programme.                                      |
| <b>PRODUCTS?</b>        | Distributed Processing (terminals, minis, comms, date-entry, small business systems etc.)      |
| <b>BENEFITS?</b>        | MONEY, CAREER, PRODUCTS, SUPPORT, NICE PEOPLE, CUSTOMER BASE, EXCELLENT ENVIRONMENT, EXPENSES. |
| <b>INTERESTED?</b>      | Phone us to talk it through. Reference CW 182.   |

## Chemical or Mechanical Engineers Senior Marketing / Sales Positions ££8,500 p.a. base salary

World leaders in Engineering Applications and Design Automation, using Computers. They need:

A Marketing Consultant to be responsible for The Mechanical Engineering Sector.

A Marketing Consultant to be responsible for the Chemical Engineering/Process Industry Sector.

These are EXCITING, CHALLENGING opportunities. Phone or write to arrange discussions REF CW 183.



Insight Marketing & Personnel  
Consultants Limited,  
72-75 Marylebone High Street,  
London W1M 4AJ.  
Telephone No. 486 5644



# Announcing a comprehensive expansion programme right here

There are overwhelming reasons why you should get into this exciting computer unit, which has grown extensively - and will be expanding on an even greater scale from here on...

## 1. Money

Salaries are at present under review to take effect from 1st July. And projected expansion could take you swiftly through the promotion stakes and salary scales. These are most certainly not dead men's shoes situations!

## 2. Experience

Familiarisation with our big Univac systems takes just a few days. Literally. So if your experience lies elsewhere you can increase your future potential by widening your knowledge here.

## 3. Potential

Right now, the latest UNIVAC equipment is employed - an 1100-11 (comparable to ICL 2970 or IBM 370/158) with 393K memory, last-developing on-line facilities, and on-line programme development facilities. Plans are laid for a dual processor system in 1979 to be followed by a larger dual processor system in 1981. So getting in now means tremendous career potential as the rapid expansion occurs.

## 4. Job satisfaction

Few computer users have a comparable application range. You could be working on jobs involving social



workers one day, educationalists the next and the police the next. Applications now in the pipeline concern a traffic accidents analysis, personnel records, the supplies system and an on-line library system. So it's variety all the way!

## 5. Benefits

Removal expenses, disturbance and lodging allowances and assistance with housing are given

Act now - include appropriate background details and indicate which position interests you in your letter addressed to the Head of Computer Services, County Hall, Kingston-upon-Thames, KT1 2DN, or phone 01-546 1050 ext. 3479 for more information. Your application must be received by 26th May 1978.



where appropriate. There's also the advantage of flexible working. Membership of the staff club, automatic and free - here you'll enjoy a bar, and activities range from snooker, table tennis, tennis and badminton to disco's and drama productions. There are also attractive restaurant facilities. Appointments immediately available are.

## Software Specialist

up to £6,382

Internal promotion is the reason for this job. It involves working with UNIVAC software such as EXEC8, CMS and TIP, plus advising the Development Group and Operations Support Group and developing in-house software. UNIVAC experience is not essential but you must have experience of any major manufacturers' operating systems and communications software.

## Lead Programmers

up to £5,350

You will assist Senior Programmers in design/specification of programmes and undertake critical functions. 3 years' experience plus knowledge of COBOL is required.

## Programmers

up to £4,900

If you have at least 15 months' COBOL experience you'll start at a salary linked to your achievements so far - but the career scheme gives opportunity to move fast through the salary scales.

## Kreativität und Kontaktfreudigkeit erwünscht

Wir bieten den kompletten Rechenzentrum-Service zentral in Frankfurt für alle europäischen Zweige einer weltweit aktiven Versicherungsgruppe. Da die Nachfrage nach unseren Dienstleistungen beständig wächst, haben wir unsere Hardware jetzt auf eine 370-138 mit 512 KB (unter DOS/VS Rel. 34) ausgebaut. Aufgrund unserer Expansion wird ein

## Versicherungswirtschaft

## ANALYST/PROGRAMMIERER

— mit guten Englisch-Kenntnissen —

mit der Fähigkeit, Projekt-Liefer zu werden, gesucht. Die Aufgabe besteht in Systemanalyse in allen Versicherungsbereichen für Neuorganisation, Änderung und Übernahme fertiger Abläufe für weitere Länder Europas, aber auch teilweise Programmierung (ANS/COBOL) dafür.

Sie haben sich schon einige Jahre in Systemanalyse und Programmierung im kommerziellen Bereich bewährt, sprechen gut Englisch und kennen sich vielleicht sogar schon etwas im Versicherungswesen aus. Sie erwarten gute Entwicklungsmöglichkeiten in einem kleinen Kreis junger und engagierter Kollegen, ein sicheres und ständig wachsendes Aufgabengebiet und selbstverständlich ein sehr gutes Gehalt.

Wenn Sie sich angesprochen fühlen, senden Sie bitte Ihre aussagefähigen Unterlagen an die COMPUTER SERVICES EUROPA GMBH, 21 Weendstrasse, 6000 Frankfurt/M, West-Germany. Tel.: 0611/74 04 04. Ihre Bewerbung wird von uns absolut vertraulich behandelt.

## CANADA

Recent changes in the immigration laws in Canada will allow easier entry into the country for those people (male and female) whose job skills are in demand, and where a shortage exists within the Canadian labour force. Such is the case within many areas of the Data Processing job market where there is a strong demand in several areas of the country for the following specialised people.

## PROGRAMMER/ANALYSTS

£8,000 to £11,000

Experienced with medium to large-scale equipment, preferably IBM under OS/VS or MVS, COBOL, PLI, MARK IV languages, CICS, TSO, IMS or other DBMS exposure desirable. Positions available in a broad range of application areas and industries.

## SENIOR ANALYST/PROJECT LEADER

TO £13,000

Strong business background with several years' system design and project control experience. Good conceptual, communication and leadership skills essential. Career to date should reflect a proven track record of success in the implementation of large-scale systems. Positions exist in retailing, manufacturing, financial institutions and natural resource industries.

## SOFTWARE SPECIALISTS

to £15,000

A strong demand exists for specialists skilled in the support of large-scale IBM installations. Your background should include solid experience with any of the OS/VS, MVS, CICS, TSO, IMS DB/DC, System 2000, AOBAS, 370 ASSEMBLER, SCP support, performance measurement and evaluation. Canadian business is placing an increasing emphasis on such leading edge areas as distributed processing, telecommunications and data base administration. Our representative will be conducting preliminary interviews in London and should you feel interested in exploring the matter more fully, we invite you, in complete confidence to write or telephone, at which time you would be given more detailed information about Canada and its major cities, and how your particular skills fit within the prevailing job opportunities.

Jill Rowlands  
34 Niton Road, Richmond, Surrey  
01-878 8588 (after 8 p.m.)

## Basingstoke & Deane Borough Council

## Analyst / Programmer

SO.1

£4239-£4545 plus approximately £520 supplements per annum.

The Council has decided to appoint a second-in-command in the Computer Section and would be pleased to hear from you if you have some (and particularly if you have any of the following) qualifications:—

3 years' experience in Cobol (including I.S. file handling)

Final II JCL/George I/George II

Good knowledge of ICL software and its capabilities

The new post is an important one in a small team operating on ICL 2804 with 2 EDS 80 and 4 mag. tape with DDC. Future applications will include non-financial routines and the person appointed will play a significant part in these developments.

Housing accommodation may well be available and assistance with removal costs will be given if required. There is an excellent staff canteen.

For an application form returnable by 26th May, 1978, please telephone Basingstoke 56222 ext. 207, or write to: The Personnel Manager, Basingstoke and Deane Borough Council, Civic Offices, London Road, Basingstoke, Hants RG21 2AJ.

## SENIOR SALES

Basics to £7,000 + 12 month Guarantees  
Quota c.£13,000 + Car or allowance  
Distributed Intelligence/Communications

Applications are invited from established professionals with proven records of selling successfully against budgets. Sound commercial experience in the mini/mainframe industry and good applications experience in teleprocessing environments are particularly useful. An excellent starting salary package will be paid to successful candidates and an exciting future is assured.

Reference CW/15/1

## SNR. SUPPORT ANALYSTS

To £7,000 p.a. + Car  
Teleprocessing/Communications

The emphasis is on a high technical level of teleprocessing and/or communications experience gained in commercial environments. The jobs involve pre and post sales analysis and a high percentage of client liaison and sales support work. Applicants will be meeting with the confidence gained either from holding responsible positions in user environments or in similar support roles.

Reference CW/15/2

Vacancies exist in these areas:  
London and Home Counties  
Birmingham and the Midlands  
Bristol and the West Country  
Manchester and the North

Applications will be treated with the strictest confidence and should be made to BOB BOWER, Advising Director.

HUTTON EXECUTIVE RECRUITMENT LTD.  
HUTTON STREET, LONDON EC4A 3BN  
TELEPHONE 01-253 7141 (24 HOURS)

**Hutton**  
SPECIALIST RECRUITMENT CONSULTANTS

## MARKETING MANAGER

Accounting Packages  
Computer Service Industry  
Basic £7,500 + Bonus £1,500 + Car  
West London Based

Our clients are a leading name in the computer service industry. Acquisition, expansion and development have dictated that they recruit a Marketing Manager to create marketing strategy for accounting packages with particular emphasis on firms of professional accounts.

Other useful experience could be a knowledge of commercial banking and it would be advantageous if candidates have had direct sales experience at some time. A £9,000 salary package plus a company car will be provided and the future of a successful applicant is assured with this highly professional organisation.

Reference CW/15/3

## PRODUCT LINE MANAGERS

Mini Computers/Terminals  
Basic to £9,000 + Expenses

Usual Big-Company Benefits

Central London Based

Our clients are one of the World's largest mini computer and terminal manufacturers with an excellent reputation in the communications and distributed intelligence market-places. They require two Product Line Managers, one for their mini computer equipment and the other for their range of terminals. These Managers will have total marketing responsibility for their designated product lines including forecasting, pricing, monitoring and training. Naturally it would be expected that suitable applicants will identify closely with the product lines and the job specification.

Reference CW/15/4

Interested applicants should telephone BOB BOWER, Advising Director. Full details are available on all positions at interview.

HUTTON EXECUTIVE RECRUITMENT LTD.  
HUTTON STREET, LONDON EC4A 3BN  
TELEPHONE 01-253 7141 (24 HOURS)

**Hutton**  
SPECIALIST RECRUITMENT CONSULTANTS

## NATIONAL SUPPORT MANAGER

Basic c. £12,000 p.a.

Usual Benefits including:

Substantial Tax Free Car Allowance

Central London Based

Our clients are a highly reputable and respected manufacturer of computer systems and are particularly involved in the decentralised data processing and communications market-places.

They operate in the United Kingdom through a national network of branches supporting both front line sales executives and pre and post sales support teams.

We are to identify suitable candidates for the vacancy of National Support Manager. The job involves the development and responsibility for implementing the systems and software support policy within the company. The successful applicant will be advising on various facets of the overall support structure including the operating systems support provided by the Company, the role of the software house, the role of pre and post sales support at branch level, and the role of the central software development department.

We are inviting applications from candidates who readily identify with the specification and feel that it is unlikely that any applicant who has not held a responsible position in a similar support environment, would have the necessary experience to succeed in this highly demanding and vital position.

Reference CW/15/5

Please contact BOB BOWER, Advising Director in the strictest confidence to arrange an appointment.

HUTTON EXECUTIVE RECRUITMENT LTD.  
HUTTON STREET, LONDON EC4A 3BN  
TELEPHONE 01-253 7141 (24 HOURS)

**Hutton**  
SPECIALIST RECRUITMENT CONSULTANTS

## NORTHERN HOME COUNTIES AND MIDLANDS

## SALES ENGINEERS

Are you selling in any of these market areas?

- ★ Process Control
- ★ Automation
- ★ Numerical Control
- ★ Data Logging
- ★ Computer Based Industrial Systems

ARE YOU EARNING £12,000+, WITH COMPANY CAR AND LARGE COMPANY BENEFITS?

This major international mini computer supplier is answering the world's demand for greater productivity by producing automation systems with advanced technology.

Tremendous sales success has created the demand for additional sales engineers in London and the Midlands.

Successful applicants will enjoy an excellent income package from a high base salary plus commission. A company car is provided and benefits reflect the importance of the positions.

Telephone the advising consultant quoting reference CW/181 or write:

**Insight Marketing & Personnel Consultants Limited**  
72-75 Marylebone High Street  
London W1M 4AJ  
Telephone No. 01-486 5644

## Automation Engineer

Salary: £6204-£6615 inclusive

We have a vacancy for an Automation Engineer to assist with automation of a sewage treatment works at Kingston, Surrey, a wide experience of real time process control systems including data storage, system identification, modelling and simulation techniques is essential. Experience in the specification, testing and commissioning of complete systems is necessary and an ability to program efficiently in a high level real time language such as Extended-Fortran, Coral, etc. is essential, together with a knowledge of mini-computers and peripherals, micro-processors and telemetry. Familiarity with sewage treatment processes and instrumentation is desirable but not essential. The person appointed would for the first 2/3 years be based at a central London design office but spend a proportion of his/her time at the sewage treatment works at Kingston, Surrey, which is to be extended and automated. Subsequently he/she would be based at the treatment works and would have a responsibility for the commissioning of continuing successful operation of the scheme followed by further schemes in the Greater London area.

35 Hour week - 24 days holiday - Pension Scheme

Application forms are available from Personnel Branch, 4th Floor, Broadway Building, 60-64 Broadway, London, SW1H 0BB (Telephone 01-530 0786) quoting reference 78.

Closing date: 28 May, 1978.

**Thames Water**



**AUSTRALIA & NEW ZEALAND****OPPORTUNITIES FOR COMPUTER ENGINEERS**

Opportunities are available for experienced Computer Engineers who are thinking of migrating to Australia or New Zealand.

Control Data systems are installed in all Australian capital cities and in Auckland and Wellington, New Zealand. The company's products include mainframe and mini computers, peripherals, terminals and magnetic media and supplies. In addition the company provides a nation wide data services network, maintenance, software consulting and computer facilities planning and construction services.

YOU should have several years of system or peripheral experience preferably with Control Data products, IBM 370 SYSTEMS or ICL SYSTEM 4. YOU will be offered an excellent salary package, superannuation, top working conditions and real career opportunities, in addition to assistance in relocating to Australia or New Zealand.

For further information please telephone John Smith, London 572 3411, or send your resume (including contact telephone number) to Control Data Limited, Temlan Way, Green Lane, Hounslow, Middlesex TW4 6BL, marked for the attention of Mr. J. Smith.

Interviews will be conducted in London during the week commencing 22nd May.



CONTROL DATA AUSTRALIA PTY. LIMITED

CONTROL DATA

**JOIN THE 2900 PROFESSIONALS**

(and re-locate to the North Yorkshire countryside)

**SENIOR AND SYSTEMS PROGRAMMERS:**

Have you the necessary experience and drive to join an energetic team of computer professionals engaged in installing and developing a large ICL 2978 computer providing comprehensive Batch, RJE, MAC and TP facilities under VME/B?

SENIOR PROGRAMMERS with experience of COBOL and SYSTEMS PROGRAMMERS with experience of sophisticated operating systems (VME/B, George 3 or similar) are required to supplement the Software Support group at

**NORTH YORKSHIRE COUNTY COUNCIL**

The council's administrative headquarters in the market town of Northallerton is in the heart of the North Yorkshire countryside close to the North Yorkshire Moors and Dales National Parks, York and Harrogate.

A large selection of attractive and reasonably priced properties are available within the town and surrounding villages.

Starting salaries up to £4815 (excluding Phase 3 settlement) will be paid according to experience. The Council will pay removal expenses, provide assistance with the payment of legal fees, disturbance allowance and lodging allowance where appropriate.

If you consider your experience and ability to be suitable then write giving full details of experience, training, age and salary, together with the names and addresses of two referees, to THE COUNTY TREASURER, COUNTY HALL, NORTHALLERTON, NORTH YORKSHIRE, DL7 9AL. TEL: (0609) 3123 EXT. 515.

APPLICATIONS TO BE RECEIVED NO LATER THAN MAY 22, 1978.

**Computer Operator/Programmers****£3282-£3622 p.a. inc.**

(+ Phase III salary award, payable from July 1)

- Bouds Green
- Cockfosters

Two opportunities to become involved in setting up the 7090/9000 computer system for the University of Northumbria. The Polytechnic has a 7090/9000 computer and the Computer Operator/Programmer will gain small scale responsibility for remote access terminals at various operating centres, opportunities will arise to work in both areas with programming.

You should have good relevant experience of computer/terminal work, preferably in an educational environment, possess common sense and an accurate approach to work.

Telephone 061 666 000 on 01-202 8543 for an informal discussion or write for full details and an application form, quoting Ref. 113.158 if you are interested in working at Bouds Green. Ref. 113.159 for Cockfosters. Post your letter first class to: Applications Office (quote ref.), Middlesex Polytechnic, Bouds Green Road, London N11 2NG. Closing date: May 15.

**Middlesex Polytechnic****City Treasurer's Department**

The City Council operates an IBM 370/136 under DOS and CICS providing a wide range of services both financial and non-financial to several departments. There are plans for considerable expansion of these services by installing a larger IBM mainframe and further on-line facilities. We require —

**Systems/ Applications Programmer**

Post No. 549

Salary Scale £2004-£2812 including Phase I and Phase II Pay Supplements (Phase III award pending from 1.7.78)

Applicants should have several years' experience in computing with an interest in systems and teleprocessing software. A thorough knowledge of DOS/VS and BAL will be preferred. Specialist DOS/VS and CICS/VS training will be given as necessary.

**Programmer**

Post No. 551

Salary Scale £2386-£4618 including Phase I and Phase II Pay Supplements (Phase III award pending from 1.7.78)

To become a member of an established project team. Applicants should have two years' experience of either BAL or PL/I.

The City Offices are newly constructed and include a staff restaurant. Flexible working hours are in operation. Removal and resettlement expenses up to £500 will be payable in appropriate cases.

Application forms are available from the City Treasurer, Civic Offices, Guildhall Square, Portsmouth PO1 2AR or telephone Cath O'Neill on 0705 834348.

Closing date 1 June, 1978.

**city of PORTSMOUTH**

**CAPITAL APPTS. GRADUATES**  
Urgently required in various positions: Industrial, Scientific, Commercial, Sales etc.  
£3,000  
ALL AREAS  
637 5551 day, 436 9659 eve

**UNIVERSITY OF YORK Programmer**

A vacancy exists for a programmer with COBOL experience to work in the University's Data Processing Section on a variety of administrative applications. The University operates a DEC system-10 computer.

Salary within the scale £3,185-£3,282 with USE.

Six copies of applications, naming three referees, should be sent by 1 May, 1978, to the Registrar, University of York, Heslington, York YO1 5DD, from whom further particulars may be obtained. Please quote reference number 12/8056.

**UNIVERSITY OF STRATHCLYDE CHIEF COMPUTER OPERATOR**

Applications are invited for a second Chief Computer Operator post in the Computer Centre. The successful candidate will be concerned with the Honeywell 600/60 to be installed in the University of Strathclyde, Glasgow, Scotland. The post involves the operation of the system which already exists in the Computer Centre.

The University of Strathclyde, Glasgow and Glasgow are linked by 600/60 communication lines with Mode 10 computers. The successful candidate will be concerned with the Honeywell 600/60 to be installed in the University of Strathclyde, Glasgow, Scotland. The post involves the operation of the system which already exists in the Computer Centre.

Candidates are expected to have several years' experience as a Staff Programmer, Knowledge of Honeywell 600/60 systems operating under C.C.S., and experience of computer systems will be an advantage.

Salary Scale (including all supplements) £2,800-£4,100 per annum (plus pension). Applications should be sent to the University of Strathclyde, Glasgow, Scotland. Closing date: May 15.

**Scott Wilson Kirkpatrick & Partners****Senior Programmers**

We need two Senior Programmers/Systems Analysts to work in our modern Basingstoke office.

Scott Wilson Kirkpatrick & Partners have many years' experience in the application of computers in the fields of structural, civil and highway engineering and in transportation planning. Those appointed will be required to work in close collaboration with professional engineers and transportation planners in dealing with the problems to be solved and to work on their own initiative in developing the necessary software.

Applicants must have a high level of competence in the use and application of Fortran IV, having 15-20 years' relevant experience and HNC/OND in mathematics, statistics and computing or computer studies. They should have experience in one or more of the following:

- Statistical methods
- Numerical calculations
- Graphical methods
- Systems programming (mini-computers)
- Matrix operations
- Data processing
- Interactive techniques

Salary will reflect age and experience.

We offer:

- Pensionable appointments
- Flexible working hours
- Luncheon vouchers
- Assistance with removal expenses.

Please write/telephone for an application form to: Staff Services (Recruitment), Scott Wilson Kirkpatrick & Partners, Scott House, Sailing View, Basingstoke RG21 2JB. Tel: Basingstoke (0256) 81181.

**EDITOR**

required for an international monthly subscription magazine for Data Processing Management and senior Computer Personnel. An in-depth knowledge of the computer industry and previous publishing experience, including editing, are essential requirements. Previous experience as an editor would be advantageous. And some time spent working in the computer industry, with a computer user, would be desirable. Must be able to communicate effectively with industry people at all levels, control a small editorial department, and work closely with the publisher and advertisement manager.

Apply to: Peter Thomas, Publisher, IPC Electrical-Electronic Press Ltd., 78/80 Eleckshire Road, London SE1 8LU. Tel. 01-281 9111.

**ANALYST/ PROGRAMMER****MEDICAL RESEARCH COUNCIL**

**£4885-£5687**  
(currently under review)

The Council requires an analyst/programmer to join a small DP section at its headquarters office in Central London.

Applicants for this key post, preferably graduate or with an appropriate professional qualification, should have substantial COBOL programming experience and preferably knowledge of GEORGE 3 and ICL 1900 software. They should also have participated in the analysis, design and implementation of at least one successful computer system.

The DP section is currently involved in the development and maintenance of a variety of applications and proposals for new systems are well advanced. The Section has access to the Council's own ICL 1903A at Harrow and is linked to one of the largest bureau machines in the UK by RJE and MOP terminal. Conditions of service are excellent and, in addition to a starting salary in the range above, there is a contributory pension scheme with compensatory salary supplement, staff restaurant, and an initial annual leave entitlement of 22 days. The office uses the flexible working hours system.

Please write or telephone Miss Margaret Gale, Medical Research Council, 20 Park Crescent, London W1N 4AL (01-686 5422 ext. 35) for an application form and quote reference No. P1002/69. Applications should be returned by 22 May, 1978.

**OPERATORS****TWO IBM DOS/VS OPERATORS**

A leading City-based Merchant bank offers solid career prospects, 4 weeks' holiday and a range of other "big company" benefits, plus a salary of

**£3800****FOUR IBM DOS OPERATORS**

needed at two installations in the City and the West End. As well as full job involvement, you'll also be trained in CICS. Starting salaries to

**£3700****THREE ICL 1900/2960 OPERATORS**

This City installation needs junior and senior Ops with 1800/2900 experience. Excellent perks and salaries ranging from

**£3400 (Senior Ops: £4000)****FIVE PDP 11 SERIES OPERATORS: WHATEVER YOUR EXPERIENCE!**

Jobs exist in London and the Home Counties. You'll be trained on PDP machines used in a wide variety of applications. Most of the installations are brand new, and offer some excellent perks. Salaries to

**£4500****IF YOUR PARTICULAR JOB ISN'T LISTED****ABOVE, DON'T WORRY. WE HAVE****SOME OF THE BEST JOBS ON ALL****MACHINES ALL OVER LONDON AND****THE HOME COUNTIES.****RING MIKE OAKES TODAY!****staffscene****COMPUTER RECRUITMENT 01-353 6931****9 ST. BRIDE ST., LONDON EC4****COMPUTER MANAGER — LEEDS****YORKSHIRE POST NEWSPAPERS LTD.**

are looking for a **COMPUTER MANAGER** to work in Leeds.

He/she will have full responsibility for the continuing implementation of an integrated type setting and commercial real-time system, using on-line order entry, and related to the critical timing disciplines associated with newspaper production.

He/she will need experience of:

- Programming;
- Programming in BASIC plus;
- POP IIs;
- Real-time operating;
- and have the ability to manage and motivate an experienced team of four programmers and five operators. Equally important, he/she will need to be a down-to-earth manager, a good communicator, and sympathetic to user departments and to the priorities of newspaper production. This adds up to the ability to get things done.

As a reward, he/she can look forward to:

- Considerable job satisfaction, in an enthusiastic team, using three POP II/40's;
- A good salary;
- A company car;
- Good working conditions;
- Good contributory pension scheme and free life assurance.

The opportunity to grow with a project which is in an advanced stage of implementation, but with expensive future potential.

If you think your experience and qualifications fit you for this position, write or phone for an application form to: W. J. Austin-Clarke, Group Personnel and Training Officer, Yorkshire Post Newspapers Ltd., P.O. Box 168, Wellington Street, Leeds LS1 1RF. Tel. Leeds (0532) 32701.

**Puzzle answer**

WHITE (moving up the board) plays 7-3 at his next turn, and then continues 1-5-3 and infirmity how- ever Black plays.



WHITE

DUE TO PRESSURE ON

SPACE, THE SALES

BIT HAS BEEN HELD

OUT.

**PROGRAMMER**

Leading French Bank requires

with at least 2 years' experience to help develop their Honeywell based real-time banking system. Previous experience in banking or with real-time systems would be an advantage and a mature attitude essential. Salary £4,000 to £5,000 or more depending on experience. Good staff benefits.

Write full details to:

Staff Manager

Banque De L'Indochine

Et De Suez

62-64 Bishopsgate

London EC2N 4AR

or telephone Mr. J. Eley

on 01-688 4841

**Informatix UK & O'seas Index****Phone 01-831 6055**

Informatix 24 Gray's Inn Road London WC1X 8HR Telex 299539 HAVEN G



POSITION	SALARY	EMPLOYER	LOCATION	HARDWARE ENVIRONMENT	SOME OF THE QUALIFICATIONS	REF. NO.
Engineers	to £11,000 tax free + accom + car	Service Industry	Middle East	Minis	Engineers urgently required with experience of maintaining minis/peripherals — excellent prospects for the right people.	19/1
Applications Programmers	c £5,250	Retail trade	WI	ICL	Excellent prospects for ambitious programmers with 2 yrs + COBOL. Experience on ICL equipment.	19/2
Systems Analysts	To £8,600+	Transport Industry	Berke	IBM/Minis	First-class openings for analysts with 2 yrs + commercial experience to work in a challenging environment.	19/3
RPG II Programmers	To £5,000	Software House	N. Surrey	Minis	Systems 3, RPG II programmers required to develop commercial systems on an interesting range of minis.	19/4
Analyst/Programmers	To £7,000	Construction Engineering	SW1 + Travel	IBM OS	Opportunities for analyst/programmers with 3 yrs + experience of COBOL/RPG required to join this recently established UK company.	19/5
Systems Support Staff	To £17,000 tax free + accom.	Computer Services	Tehran	PDP11 IAS/RSXII	2 yrs + contracts now available to analyst/programmers with COBOL/FORTRAN and software/application experience.	19/6
Sales People	c £10,000+	Manufacturer	Herts + Overseas	Minis	First-class opportunities for experienced computer sales personnel to work in a challenging and rapidly developing field.	19/6
Analyst/Programmers	To £8,000 + Mortgage	Bureau	EC4 relocating to EC1	IBM OS	Openings to IBM assembler programmers to join this expanding organisation and work on various commercial applications.	19/8
Programmers/Engineers	To 40,000 Guilders	Manufacturer	Amsterdam	Minis	Engineers/programmers urgently required to work on software/hardware development. Airline experience particularly relevant.	19/9
Programmers	To £6,000	Consumer Products	EC1	Honeywell	For programmers with 1 yr + COBOL (2nd language an advantage) on opportunity to join a TP installation.	19/10
Programmers/Analysts	To £16,000	Software House	Netherlands	Minis	D.P. professionals with experience of process control, networks and M/C control, or technical/scientific background urgently required.	19/11
Systems Analysts	To £8,500 + Mortgage	Bureau	EC4	IBM OS	Analysts with COBOL/real time experience required to develop interesting commercial systems.	19/12
Analyst/Programmers	To £5,780 + perks	Drinks/Distribution	W3	ICL 1900	Analyst/Programmers with 2 yrs + COBOL experience (PLAN an advantage) required to join this stimulating D.P. department.	19/13
Systems Analyst	To £8,000 + car allow.	Manufacturer	N. Surrey	Minis	Urgently required — analysts with 2 yrs + business and technical background to develop systems on a range of minis.	19/14
Analyst/Programmers	To £7,000+	Software House	Central London + travel	IBM OS	Excellent opportunities for analyst/programmers with 1 1/2 yrs + COBOL experience to join a dynamic organisation.	19/15
Engineers	To £15,000 tax free + accom.	Computer Services	Middle East	PDP, CMC etc.	Self-sufficient engineers urgently required for an expanding organisation. Excellent prospects.	19/16
Project Managers/Analysts	To £8,000	Software House	Surrey	Minis	Urgently required — DP professionals to design and implement commercial systems and manage programming teams.	19/17
Programmers	To £6,500+	Software House	Central London	IBM OS	A1 opportunities for PL1 programmers with 2 yrs + experience to work in a challenging environment.	19/18
Systems Analysts	To £8,600	Manufacturing	Middx.	Minis	Analysts with a programming background required to develop on-line manufacturing control systems.	19/19
Senior Programmers	To £6,500 + Mortgage	International Banking	EC3 + travel	IBM + Minis	Programmers with 3 yrs + PL1 and team leadership experience urgently required to join an expanding organisation.	19/20
Analyst/Programmers	To £15,000+	Software House	Brussels	PDP11	Excellent prospects for analyst/programmers with real-time/data communications/network experience.	19/21
Programmer/Analysts	To £8,000+	Manufacturer	N.E. Surrey	IBM + Minis	Opportunities for programmers with 2 yrs + COBOL/BAL to work on DB/TP applications.	19/22
Analyst/Programmers	c £6,500 + Mortgage	Banking	WC2 + Travel	PDP11	Excellent career prospects for programmers with some analysis experience to join an expanding banking concern.	19/23



